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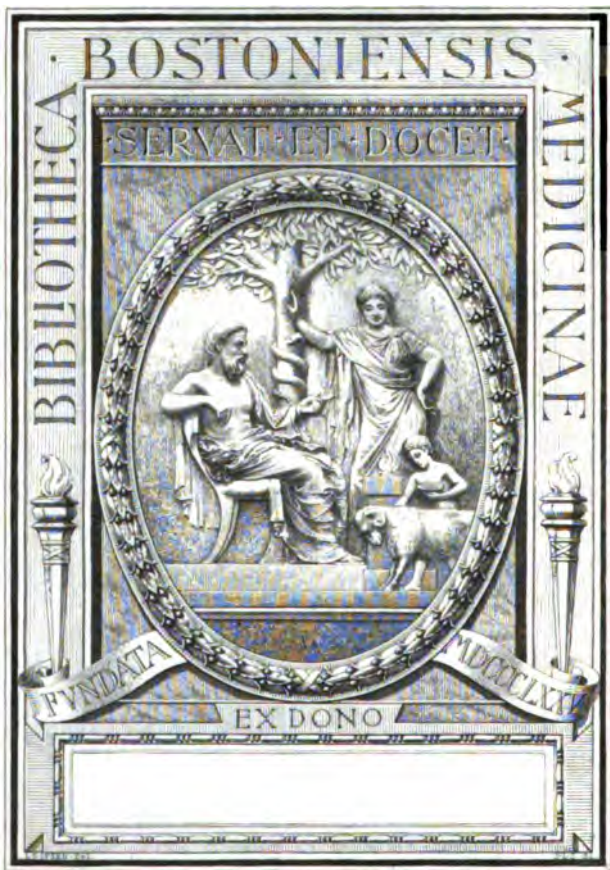
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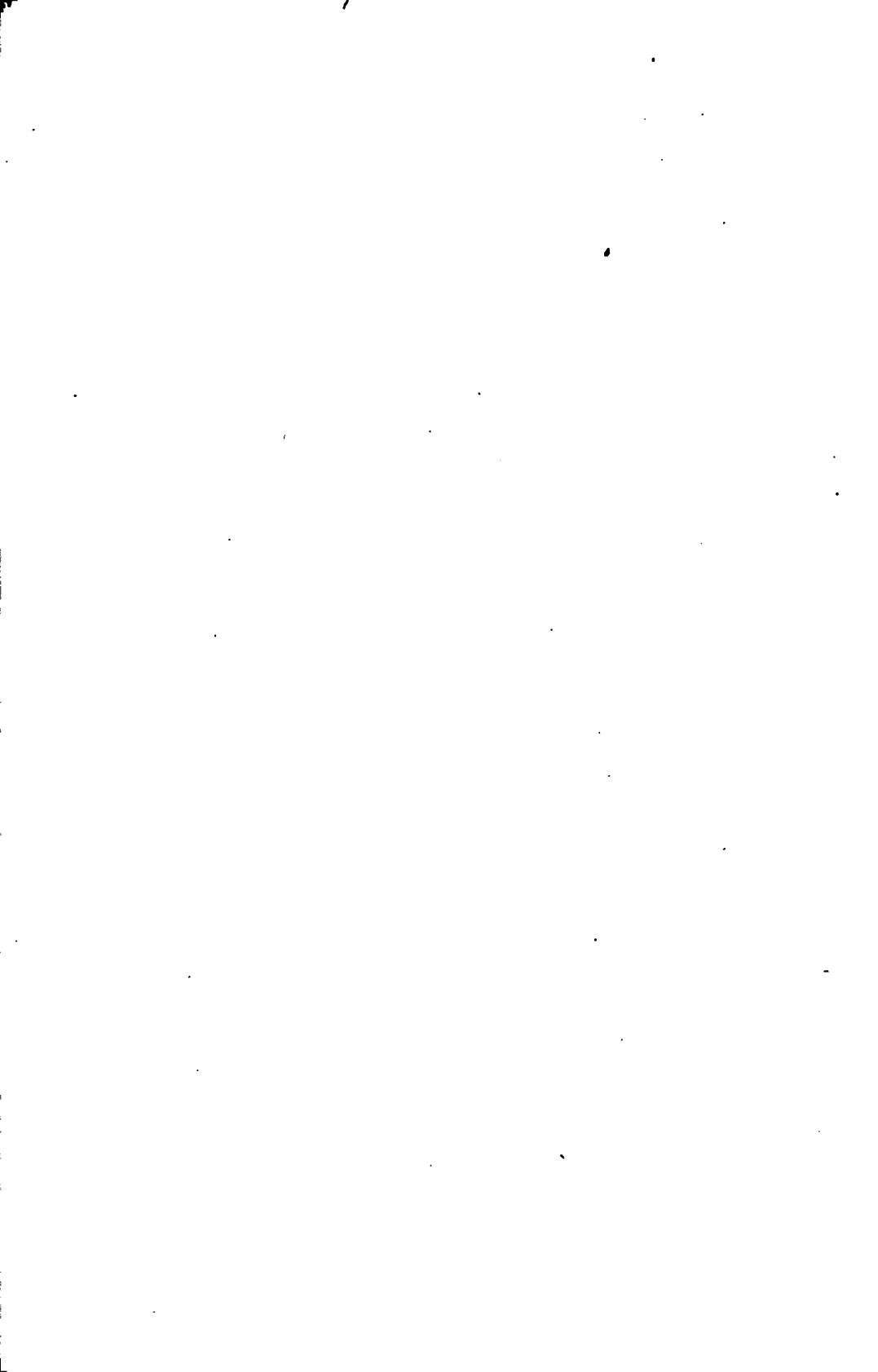
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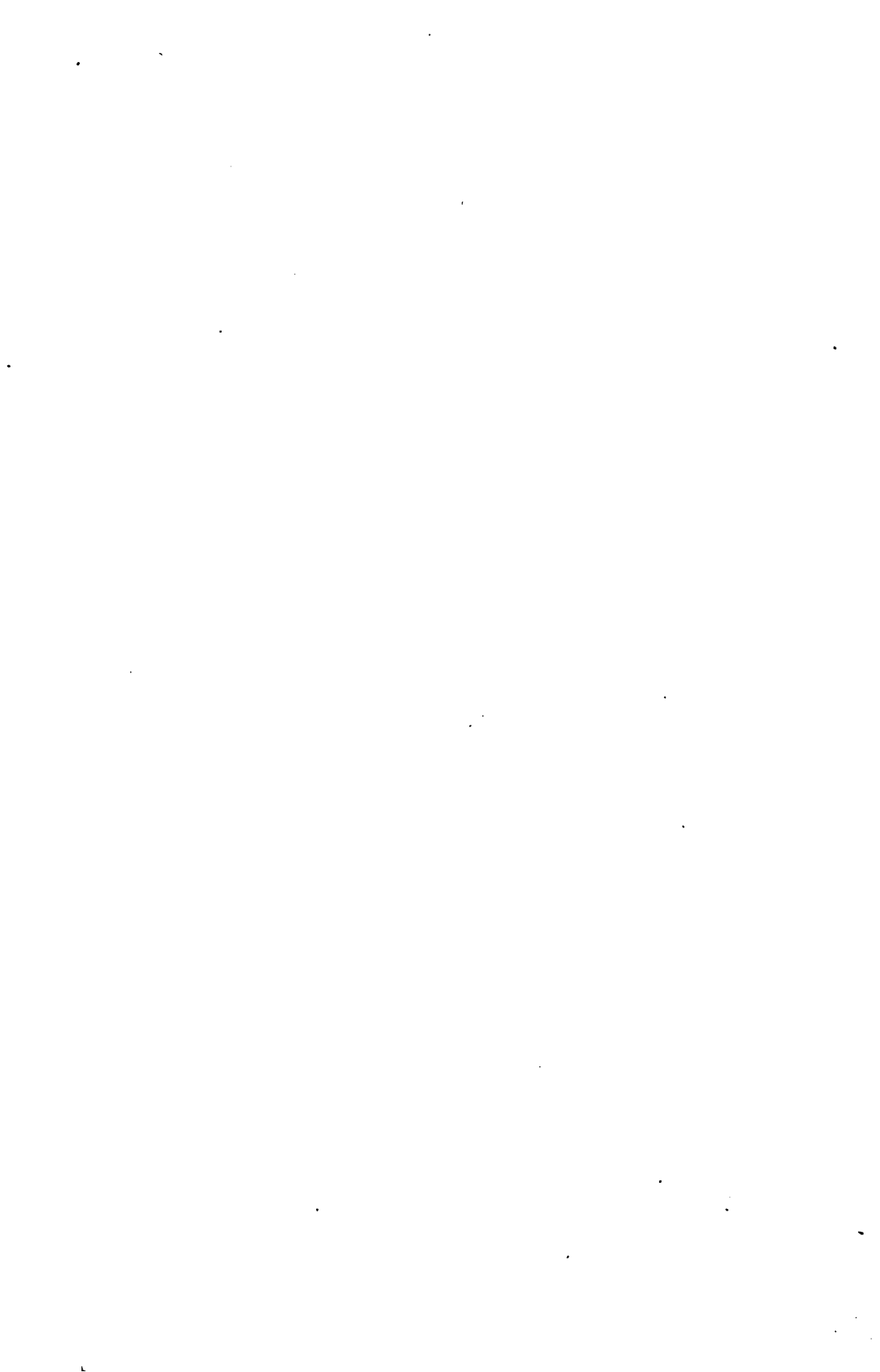
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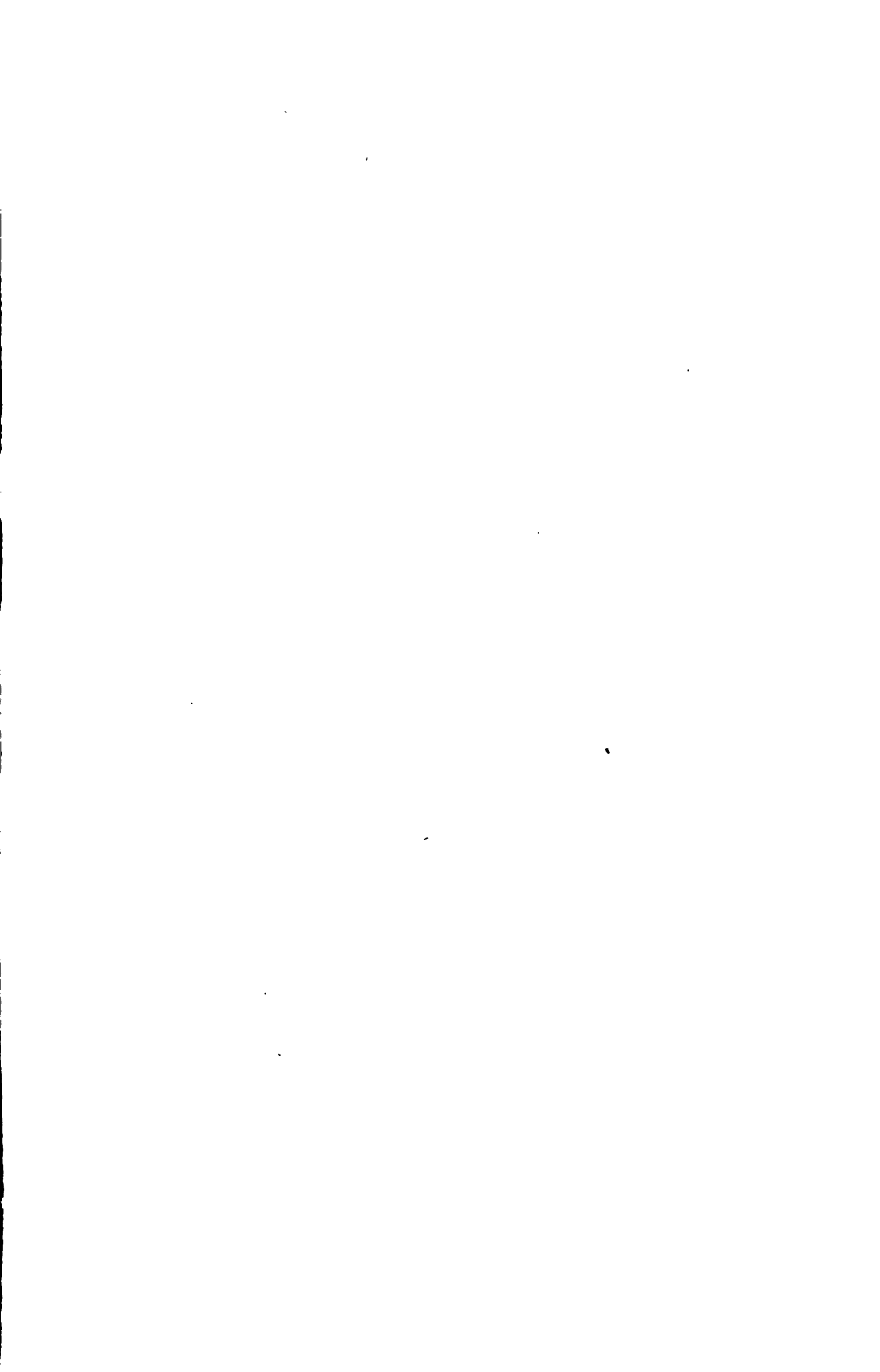
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**JOURNAL**  
**OF THE ASSOCIATION OF**  
**MILITARY**  
**SURGEONS**  
**OF THE UNITED STATES.**

**EDITED BY**

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**VOLUME XVI.**

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**CARLISLE, PENNSYLVANIA,**  
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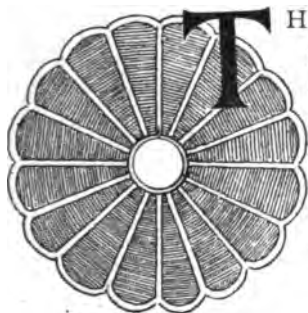
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## Original Memoirs.

AUTHORS ALONE ARE RESPONSIBLE FOR THE OPINIONS  
EXPRESSED IN THEIR CONTRIBUTIONS.

### OBSERVATIONS IN THE RUSSO-JAPANESE WAR.

By MAJOR LOUIS LIVINGSTON SEAMAN,  
LATE SURGEON IN THE UNITED STATES VOLUNTEER ENGINEERS.



THE letter of our Secretary requesting a paper for this meeting on the medical features of the Russo-Japanese War, was delayed in transit and arrived just as I was leaving Manchuria. In complying with that request, I beg to state that the following is submitted, not as a scientific digest of what has transpired, but merely as a narrative of some of my personal experiences, together with a few conclusions drawn largely from observation, in this and other wars. As a reference library does not form part of the kit of a war correspondent, or of a "Hunhutze raider," I trust you will overlook any minor inaccuracies.

The thousand objections raised by the governments of both belligerents against granting passes to the firing line, or giving permits to visit battle fields directly after a fight; and their refusal to impart statistical information are only a few of the many difficulties we encountered. Even when, in defiance of martial law, one seized a favorable opportunity to break away from the network of control, to pursue an independent investigation, he was confronted with the formidable objection of not understanding the Japanese, Russian, Korean or Chinese languages. Thus you see, the collection of scientific or statistical data, was no easy

task, and why the material in my possession will require further revision before it can be submitted for publication. Accompanied by my Assistant, Dr. Trautman of New York, I left Washington May 25 and arrived in Tokio June 20. Armed with strong credentials from the Japanese Minister, Mr. Takahira, to Mr. Chin-da, Secretary of foreign affairs in Tokio; also from our Secretary of State, our Surgeon General, and General Chaffee, we went at once to our legation, and then to the War Department, for the much coveted pass that was to take us to the front. During the inevitable delay following, we studied the splendid Red Cross system which has its headquarters in this beautiful Capital, and its University and Medical Schools, which since the Restoration (1868) have given to the world such men as Ito and Komura in diplomacy, Kitasato and Shiga in Bacteriology, Fukuzowa, in Education, Kikuchi in mathematics, Shimosa in chemistry, Tot-suka, Sato, Takamini, Saneyoshi, and Takeki in medicine, and others of international reputation. True, some of these men received their university education in German, English and American centres,—but they are now splendid exponents of their various specialties, and through their original investigations in forensic medicine and other scientific channels, are creating for themselves enviable places in the ranks of fame.

We found the Military, Red Cross and University Hospitals conducted on broad, up-to-date principles, the operating rooms being supplied and fitted up with the latest devices for antiseptic procedure. Fresh air is appreciated at its full value and liberal facilities are afforded for sunshine and outdoor recreation. The latrine system is somewhat antiquated (earth closets mostly) but this objection is overcome when one remembers the exquisite cleanliness for which the nation is so justly noted.

Up to July 1, only about 1100 wounded, and no medical cases had reached Tokio, mostly from the base hospital at Hiroshima, which was continually sending large numbers to other divisional hospitals to make room for fresh ones from the front. They were mainly from the Yalu, Nanshan and Telissu fights, and included many severely wounded by shell fragments, bullets, shrapnel, saber cuts and explosions. They come by rail



from Hiroshima to Shunbashi station where they are detrained and placed in rickishaws or on bamboo stretchers. The Japanese are an undemonstrative people. At the station, nearly every second day, or night one can see an almost silent crowd, dispassionately gazing on the growing lines of wounded, who return the stare with equal gravity. One would never imagine that standing in the stolid crowd, many have come to try and discover a relative or lover. Occasionally a mother or a sister will recog-



**Hospital Wards at Matsuyama.**

ize a son or a brother. Apparently no feeling is shown, only a cool formal greeting with a touch of reverence on the part of the woman,—the real welcome is reserved for the sacredness of home, and is a welcome of which the world knows nothing. The road from the station to the various hospitals lies sometimes through the busiest part of the city, but everywhere the slow impressive procession is met with a respectful silence till at last the hospital is reached, where with almost mechanical precision the patients are distributed; and so systematic are the arrangements that in a

few minutes nothing remains to indicate an interruption of the usual routine of the day. The little Red Cross nurses, smilingly perform their duties with a precision and celerity that commands admiration. We found the physical condition of the patients remarkable, considering the severity of their wounds and the character of the campaign through which they had passed. Their faces showed little evidences of illness or suffering; on the contrary the majority looked as well as their attendants, and their greatest anxiety seemed to be to know when they could rejoin their comrades in the field. When I tell you that of the more than a thousand wounded received in Tokiō prior to July 1 not one had ended fatally, and that every one remaining in the wards presented a favorable prognosis, you can appreciate the admirable work that is being accomplished there.

It is the rule of the Japanese Surgeons at the front to do little or no operating except in cases of extreme emergency or where hemorrhage threatens immediate death. All cases are treated by the application of the First Aid dressing, and then sent to the rear as quickly as possible, thence by hospital boat or transport to the base hospitals in Japan. The Tokio surgeons are complaining of having so little to do; for by the time the wounded arrive, the vast majority of wounds have cicatrized by first intention, and further interference is unnecessary.

On July 1 our long delayed passes came, permitting us to visit all the Military and Naval Hospitals in Japan, and the Russian wounded and prisoners at Matsuyama. No time was lost in turning at once to Hiroshima on the beautiful Inland Sea, where the base Reserve Hospitals are located. These institutions comprise six divisions, in different parts of the city, each division having its own administrative building, behind which a long open hall way runs between ten corridor wards. Each ward is capable of accommodating fifty patients in ordinary times, but such is the elasticity of the hospital, that in the emergency of war 500 extra beds can find temporary space in each division. Fifteen Buddhist Temples have recently been requisitioned, to form an additional division, their beautiful and roomy interiors giving ample accommodation for another 1000 patients. Hundreds of

wounded arrive every few days from the fields around Port Arthur where terrific fighting has been in progress almost incessantly since July 15. Since August 26 (after which I made a second visit to Hiroshima) the execution has been at much closer range, and the severity of the wounds correspondingly increased.

High velocity bullets at such short distances produce an almost explosive effect, shattering osseous and lacerating muscular tissue far more than any previously brought from the front.

The operating room of the first Division Reserve Hospital is presided over by the distinguished Surgeon General Sato, and his able associates Colonel Ohuishi and Captain Tanaka. Here indeed was the surgery of the battle field, for gunshot casualties



**Japanese surgeon and nurses treating Russian prisoner at the Matuyama hospital.**

ties of nearly every conceivable type were continually arriving from the front. A detailed description of even a few of them would be impossible in the prescribed limits of this paper, but the careful systematic work of the attending surgeons and Red Cross and American nurses call for special commendation. One of the

features of the Hospital is the constant flooding of the floors of operating and dressing rooms with a solution of bichloride, to prevent dust or the development of bacteria.

Of the thousands of casualties here, photographs of some of which are before you, the most interesting from the Surgeon's standpoint were those of spurious and traumatic aneurism, of which I saw 26. These cases were comparatively rare before the introduction of the modern small bore metal jacketed bullet of high velocity, the theory of their causation being that they result from the initial energy imparted to the soft structures near the injured vessel (or to the vessel itself) at the instant of the impact of the bullet. This force or energy, *vis a tergo*, as it might be termed, lacerating and contusing the adjacent soft structures in its course, also injures the elastic layer of the arterial wall, so that, sometimes weeks after the original wounds of entrance and exit have healed, a small pulsating tumor is discovered, near the track of the bullet, which, distending gradually, soon becomes an aneurism requiring operative interference. Such a specimen is shown in the bottle before you. It resulted from a bullet passing through the middle third of the fore-arm nearly half an inch from the radial artery. The wall of the vessel was injured so that it lost its resisting power, and the aneurism gradually developed, three weeks later. Unfortunately, the sac, which at the time of removal was nearly an inch in diameter, has contracted in the preserving fluid, so its former size cannot be appreciated.

The ideal treatment adopted is to control the circulation, cut down upon the tumor, ligate the proximal and distal ends of the artery, and enucleate or dissect it out.

In traumatic aneurisms this method is rarely possible, owing to extensive blood extravasations, and the friability of the surrounding tissue more or less broken down by the distention caused by the presence of old blood clots. The muscles of the soldier are firm and tense, and contract or relax in their sheaths so easily, as often to occlude the small apertures made by the entrance and exit of the modern ball. If then, a small artery is cut along the track of the bullet; and the overlying muscles pre-

vent the escape of the resulting hemorrhage, a traumatic aneurism follows, whose size depends upon the calibre of the injured vessel, and the resistance of the surrounding tissue. Extensive extravasation may take place between the sheaths of muscles, as was the case in two instances I saw, where large coagula were turned out after incisions—and where in one case, amputation was necessary to control hemorrhage and save life. Pulsation of the tumor is rarely felt, owing to coagulation of the effused blood, or the small size of the affected vessel.

Another series of interesting cases of which there were numbers in the Hospital, were those in which the bullet had injured both a vein and an artery, or where *both* vessels had been simultaneously punctured, resulting in a direct or indirect connection of the vessels, or in other words—an arterio-venous communication. In one of the cases (when I was present at the operation) the radial artery was affected—an aneurismal sac had formed in which the bruit and pulsation were distinctly marked. Ligatures were applied to both ends of the artery, its sac and connecting link with a section of the vein carefully removed—and, as I learned afterwards, the patient had a rapid and satisfactory convalescence.



Carotid Aneurism.—Reserve Hospital,  
Hiroshima.

Instances I saw of bullets, passing directly through the great cavities—7 through the cranial, 9 through the thoracic, 8 through the abdominal, and so many through the extremities that their number was quite lost, cauterizing their course, and healing both

entrance and exit wounds by first intention after first aid dressings—were so numerous as to leave no doubt as to the asepsis of the modern ball when the lesion is uncomplicated. Of course supuration followed where balls ricocheted, carrying with them foreign matter, bits of clothing, dirt or splinters, but these instances were comparatively rare, and only served to emphasize the wisdom of the principle of non (operative) interference on the field, or afterwards, except under strict aseptic conditions; a principle the Japanese fully appreciate, and the adoption of which has saved many valuable lives.

Conspicuous by their absence were cases requiring operations for appendicitis, hernias, floating kidneys, choledectomies, etc., etc. Indeed, during the entire summer I have not seen a single hernia or a laparotomy. The Japanese soldier has been taught how to treat his intestines—and consequently his intestines are *now* treating him with equal consideration. His plain rational diet is digested—metabolized and assimilated. It is not an irritating indigestible fermenting mess—acting as a local irritant and producing gastritis, duodenitis, enteritis, colitis, hepatitis and the long list of inflammatory intestinal processes with which we were all so familiar in the hospital wards at Camp Alger, Chattanooga, Tampa, Cuba, Porto Rico, Montauk Point, etc. in 1898.

Indeed, the men here looked remarkably strong considering their trials—far more so than the wan, but courageous Tanaka who I saw again in September with an infected finger, and a temperature ranging above 100°, but who nevertheless was at that time doing his 10 to 12 capital operations a day.

As for the average Japanese soldier, he is either less sensitive or more of a stoic than the rest of humanity. On the entrance of a surgeon, if able to stand, he is instantly at "attention,"—if too ill,—he crosses his legs in his cot in the graceful pose of his Buddha, and remains in that attitude until the visit is over. I have seen many a long ward full of these victims of Russian shot and shell. sitting like rows of Buddhist statues, with the same immobile look of quiet restfulness—of peaceful contentment, that characterizes their great philosopher—recalling in more ways than one the great exponent of their faith; and in-

voluntarily it inspires a respect and admiration, not far from reverence, for these silent suffering men who never complain, but who do their duty, regardless whether the end be victory or oblivion.

Our next visit was to Ujina, the port of Hiroshima, where the Red Cross Hospital Ship *Hakuia-Maru* was preparing to leave on her sixth voyage to the front. Through the courtesy of her commander Captain Sekina and her administrative officer, M. Kikawa and the Medical Staff, we made a thorough inspection of the ship in every department. She has ample accommodations for 200 wounded—which in emergency can be increased to 300—and in every feature—even to operating room and room for radiography, she compares favorably with the best ships used for similar purposes by the English, German and American Armies.

Next we visited Kure, one of the naval bases; and thence, to Matsuyama, where the Russian prisoners, 1600 in number, were being entertained. I say entertained—for there was nothing about their surroundings to suggest the idea of a prison—and the men themselves (excepting the officers) seemed to be having the time of their lives. They were all from White Russia—mostly Finns and Poles with a decided sprinkling of the Children of Israel in evidence. Pondering on the recent monstrous atrocities at Kishnev, and beautiful Helsingfors, and the woes of these people in their own unhappy land, the thought occurred that His Imperial Majesty the Tzar of all the Russias was emulating, with emphasis, the illustrious example of David of old with Uriah, in sending these people as cannon-fodder to the Orient, where the more killed the better, for the safety of the throne at home. The officers were quartered in a magnificent Buddhist Temple in a wooded park, near a crystal lake where many-tailed gold fish sported under the lotus and the iris, and century old cryptomeriae cast their graceful shadows over the scene of beauty. The wounded also, of whom there were over 500, had commodious accommodations, and looked well fed and happy. At the conclusion of our visit the common soldiers shouted their familiar salute, as it is given to their officers,—and as I had often heard

it in years gone by in their camps in Port Arthur. The men are solid, thick set, well built fellows, capable of great physical endurance, heavier and but little taller than their Japanese antagonist—except the officers who are all large, handsome fellows, splendidly developed. The customary ration of the Russian soldiers consists of as much good hot broth or soup as they care to eat, made principally of vegetables with a few bones or a bit of meat thrown in; and a loaf of black rye bread, so hard and sour that one wonders how they can chew it, but the Japanese are feeding them more liberally, with fish, white bread, fruit and many added delicacies, and several of them, speaking in German, declared to me they hoped to be left in Japan forever.

From Matsuyama we proceeded to Shimonoseki, (historic from its association with the signing of the treaty of peace by the Viceroy of China, Li Hung Chang, and the Emperor of Japan, in 1895), to Sasebo, the invulnerable base of the Japanese Navy. This is a most picturesque and remarkable Port, 20 miles from the sea, so securely hidden among the mountains that no hostile fleet could ever hope to follow its tortuous channel of approach, without danger of utter annihilation. Its dry-docks are among the largest in the world, and its enormous arsenal, a perfect beehive of industry. Three hundred vessels of war,—transports, torpedo flotillae, destroyers, cruisers and battleships were gathered here at the outbreak of hostilities; and here too, on a shaded eminence, overlooking the harbor (which in beauty resembles a Swiss mountain lake) is the chief Naval Base Hospital, with Surgeon General K. Totsuka F.R.C.S. in charge. In times of peace, the ordinary staff of the Hospital, like that of the Kure Port Admiralty consists of six surgeons, a pharmacist, and thirty nurses, but in the emergency of war it can be increased as occasion demands.

The character of the cases found here differs widely from those in the Military Hospitals, being of a type distinctly more severe. This can better be appreciated when it is known that prior to the date of our visit—July 16—the total casualties in the Navy amounted to 1429, of which 1209 were fatalities. But such statistics are misleading unless it is remembered that over 500 of



these deaths occurred on the occasion of the torpedoing of the ill-fated battleship *Hatsuse*, and a large proportion of the remainder on the ships that were exploded or sunk in the futile attempts to blockade the narrow channel to Port Arthur. Less than 200 wounded had been rescued from these terrible tragedies and forwarded to Kure and Sasebo. In deed, 225 represents the total number of casualties thus far received at these institutions, and of these, only five have died. The remainder are rapidly convalescing, notwithstanding their terrible punishments.

Casualties in Naval warfare differ radically from those in land battles in that bullets are rarely a causative factor in one, whilst in the other they are the predominating cause.

Fragments of shell, ragged and twisted bits of metal and splinters, causing fearful lacerations, contusions, with compound and compound comminuted fractures, abrasions, burns from explosives, scalds from escaping steam, penetrating, or perforating wounds



**Dressing Room in the Red Cross Hospital at Matsuyama.**

Russian prisoner, Japanese surgeon and nurse

of the cranial, thoracic or abdominal cavities predominate here. These are all liberally represented in the wards at Sasebo; and, as at Hiroshima, the most approved methods of treatment are in vogue and with the most flattering results. But one patient in the entire hospital, presented an unfavorable prognosis, and he was suffering from tubercle, and had not been at the front. Many of the cases were those picked up by the torpedo boats after the terrible mine explosion under the Hatsuse, and those taken from the water after the sinking of the ships in the Port Arthur Channel—most of them had been blown from their ships, and rescued by the torpedo boats under a hail of fire, and with the greatest difficulty, in the conditions indicated in some of the photographs shown. The men all look vigorous and happy. They are gaining weight under their enforced idleness, and like their fellows in the other branch of the service, their first question is to learn when they may return to their posts of duty.

Surgeon General K. Totsuka, to whom I am indebted for many delightful courtesies, is a gentleman of rare ability and practical ideas. His chief assistant, Fleet Surgeon K. Habuto, through whose generosity you are permitted to see the photographs before you, and Dr. H. Sonobe are able seconds. One of the practical inventions of Surgeon General Totsuka, is the bamboo swinging stretcher used throughout the Japanese Navy. He kindly permitted me to purchase one from the Hospital Stores, which I shall have the pleasure of showing you later.

I have seen the effect of some of the famous Shimose powder. This compound is not used for killing, propulsion I mean, i.e. for loading cartridges—but for its *explosive* qualities in blowing up ships and in loading shells. As an evidence of its power of fragmentation, the case of a Russian blue-jacket may be cited. He was on the Cruiser Variag in the Chemulpo fight when a Shimose shell burst near him. An examination of his body disclosed the presence of 161 distinct wounds.

I have tried to tell you something of the surgery of the war, but no reference has yet been made to the Medical Wards of the great Hospitals. They are there—internal, contagious and infectious departments—their conspicuously empty beds voicing more

eloquently than words, the most important lesson of the war. A few cases of diseases of the respiratory system are found—colds, bronchitis, and an occasional pneumonia,—contracted through exposure in fording rivers, exhaustive marches, and bivouacking on wet ground; a few more of typhoid (I saw only three in Manchuria); occasionally one of dysentery,—indicating the constant presence of these dangerous germs in the fighting zone (where among the natives—Koreans and Chinese—no more provision is made for sanitation than in an ordinary farmers pig-pen); and a number of cases of Kakki—beriberi—that former scourge of Oriental armies. But of all the many thousands gathered in these institutions there were but a few *medical* cases—and of these scarcely a baker's dozen came under the heading of *diseases of the digestive system*. Therein lies the great secret of the Japanese success. Napoleon never made a more truthful statement than when he said: "An army fights on its belly." Yea, verily, and the Japanese have that belly, and they take good care to keep it in fighting order—not by insulting it three times a day by cramming it with material totally unsuited to the soldier's necessities, thereby exciting irritations and disease, but by supplying it with a plain, palatable easily prepared and easily digested ration that can be thoroughly metabolized and converted into the health and energy that makes its owner the ideal fighting machine of the world today. The ration used by the Navy leaves little to be desired. I have seen entire crews on those rolling porpoises of torpedo boats, after six months continuous duty, stronger and heavier than when they entered the service; when in our own Navy, or in that of Great Britain, an uninterrupted detail of this duration and character is considered about enough to put a man out of business.

Internal diseases are practically an insignificant factor in the Naval Hospitals, and up to July 20 not a single case of Kakki had developed. This excruciatingly painful disease, known in the literature of the Orient since the days of Confucius, was for centuries the dread of Oriental armies. Nor were the navies exempt, for as late as 1882, in a total force of 4769 in the Japanese service, 1929 suffered from Kakki, of whom 51 died. Elaborate

investigation was instituted by Dr. Takaki then Medical Director of the Admiralty, resulting in the establishment of the fact that Kakki or beriberi is a neurotic disorder resulting from a lack of nitrogenous nutrition—in other words, of nerve starvation. The ration was remedied, to supply the lacking elements, with the result of practically eliminating it from the diseases treated in the hospitals of the Admiralty. From 1886 to 1893 not a single case developed. But the Army is less fortunate than the Navy. Its ration is not so rich in nitrogen. Economy is a factor that had to be studied most carefully in Japan and so no variation was made in the old ration of the soldier. This proved satisfactory in time of peace, when the soldier was not bound to it so rigidly as when in foreign service, and even in the first six months of the present conflict it served its purpose, but the long unbroken marches, when for weeks men were reduced to two meals a day—the terrible fighting in one instance—with no interruption for seven days—during three of which a large part of the Army had almost nothing to eat, and but little to drink, the long nervous tension and deficient nutrition began to tell, and when I left Newchwang late in August, Kakki began showing itself in the ranks. It is to be hoped that the reported capture by Japanese of sufficient provisions at Liaoyang to last the entire army three years is true—in which event Kakki will soon disappear. If not, the sooner the authorities substitute barley or lentils for a portion of the rice allowance, and a little pemmican as formerly used by our own army; biltung, used by the Boers, or pea sausage as used by the Germans—and by Kitchener in his famous campaign to Khartoum—the better it will be for their welfare. These foods will supply necessary deficiencies and banish an enemy that is second only to the foe they are trouncing so beautifully in the field.

It may be here incidentally noted, that the ration table of the Japanese blue-jacket contains a daily allowance of 3 oz. of liquor—saki—which, to quote from the report of Baron Saneyoshi, Director General of Medicine of the Imperial Japanese Navy, after "exposure to severe cold, or heavy rain, stimulates the action of the skin and is a great preventive against catching cold;

after severe labor recreates strength, and when the digestive power is dull during the hot season, and the heart gets weakened, is a stimulant. It also raises the spirits and gives hilarity when on lonely expeditions; and many other benefits can be obtained from the use of liquors. A small number of medical men consider that harm results from it, *i. e.* excessive radiation of bodily heat consequent on the dilatation of blood vessels of the skin, weakening of the resistive power of the body, neglect of work through drunkenness, and baneful effects on the digestive organs and the mind. From these ill effects we are pleased to say that none of our men suffered." During voyages in stormy weather, after rowing in rough water, coaling, fighting, and in severe cold below zero, and at the time of sentinel duty in the dead of winter, six ounces of saki, or one ounce of spirits, (rum or brandy) is officially given.) It can also be obtained in the canteen in limited quantity (6 ounces) under strict regulations. And yet Japan is a land of comparative temperance where I have never seen a man in the service or out of it, under the influence of liquor. Like every other army, in the world, except the Chinese and American, the Japanese have a well regulated army canteen where beer is dispensed under official supervision. This beverage is recognized as bread in solution, an excellent food, that has undergone fermentation thereby saving the stomach the unnecessary labor of acidulating it in the process of digestion. The officers regret that beer cannot be supplied to their men in Manchuria as a component of their daily ration, and in this, I believe, they are perfectly right.

The organization of the Medical Department of the Japanese Army and Navy is modeled after that of the Germans, with many added improvements. In the Army, Director General Koike, with his Associates, Dr. Hashimoto, Surgeon General at Tokio, Dr. Sato, Surgeon General at Hiroshima, and Dr. Kikushi, Surgeon General at Osaka, together with a Surgeon General with each of the three armies in the field, all have the rank and emoluments of Major General.

In the Navy, the Director General, Baron Saneyoshi, has the equivalent rank of Lieutenant General, whilst his principal as-

sociates, Dr. Totsuka, Surgeon General of the Sasebo Port Admiralty, and Dr. Suzuki, Surgeon General of the Kure Port Admiralty, rank as Major Generals.

All of these officers both in Army and Navy are of one or more grades higher than the highest possible rank attainable in our army, namely—our Surgeon General, who ranks only as a Brigadier General.

In peace time the headquarters medical personnel of each division consists of 1 principal surgeon, 2 surgeons and 9 medical subordinates. At the headquarters of each division is a well equipped garrison hospital, and local hospital arrangements are made at out stations, each hospital being provided with a suitable proportion of medical officers, apothecaries and medical subordinates. The Red Cross Society has a central Association in Tokio, with a branch in every "Ken" or prefecture. It is in a very flourishing condition, and its list of membership now includes over a million names. Its agents and nurses of whom there are thousands, are subject to military control, and work in perfect harmony with the medical department.

#### ORGANIZATION IN WAR.

In war time, to each mobilized Division is attached a medical detachment consisting of detachment staff, 2 sanitary (or bearer) companies, 6 field hospitals, with due proportion of riding and baggage horses.

In the Chinese campaign, 1900-01, the establishment of a field hospital was as follows:

- 1 chief medical officer.
- 5 medical officers.
- 1 apothecary.
- 9 N. C. officers, medical corps.
- 40 privates, medical corps.
- 1 cutler.
- 5 privates (infantry soldiers).

#### Transport Train.

- 1 senior driver.
- 1 N. C. officer driver.
- 40 men.

The composition of the bearer company at Peking was as under.

- 9 medical officers
- 1 apothecary officer.
- 1 pay officer.
- 14 N. C. officers.
- 1 pay N. C. officer.
- 26 trained men, hospital corps.

A company can nurse 100 sick, but a single company does not carry a complete set of stores, the organization for war being 2 companies, with a complete equipment for 200 sick.

*Reserve Hospitals* are established either in or out of military garrisons, for the reception of patients sent back from the field, as well as for those from regiments of the reserve and from the garrisons.

The establishment of a reserve hospital comprises:

- 1 surgeon-colonel, surgeon-lieutenant-colonel, or surgeon-major, as chief.
- 2 to 3 medical officers.
- 1 to 4 pharmacutists (officers).
- 1 commissariat officer.
- 3 to 5 chief attendants,
- 1 to 6 pharmacutists (N. C. officers).
- 2 to 8 commissariat N. C. officers or men.
- 30 to 40 attendants.
- 1 or 2 mechanics.

(a) If a sufficient number of medical and pharmaceutical officers be not available, their places may be filled by temporary civil medical practitioners and pharmacutists.

(b) Deficiencies in attendants and pharmacutists are to be made up by 1st or 2nd class reserve attendants (N.C. officers), or by temporary hired employes.

(c) The duties of all, excepting those of hospital chief, commissariat officer, and under officer, may be taken by members of benevolent societies.

(d) For every increase of 40 patients over 120, 1 medical officer, 1 chief attendant, and 10 to 13 attendants may be added.

(e) The chief of the hospital is subject to the commander of the territorial division.

*Auxiliary Hospitals* may be established when required.

*Medical Service on line of Communications.*--The medical staff of the line of communications consists of :

- 1 surgeon-lieutenant-colonel or surgeon-major, as chief.
- 1 surgeon-captain or surgeon-lieutenant.
- 1 pharmacist (only there is no reserve medical store).
- 1 N. C. officer.

*Reserve Medical Personnel.*—To each Division is attached medical *personnel*, organized at the time of mobilization, its duty being to serve in the stationary field hospitals.

Reserve medical *personnel* is named after the division to which it belongs. The establishment is as follows:—

- 1 surgeon-major, as chief.
- 2 surgeon-captains.
- 4 surgeon-lieutenants, 1st or 2nd.
- 1 pharmacist (officer).
- 1 commissariat officer.
- 14 chief attendants (N.C. officers).
- 40 attendants (N.C. officers).
- 3 pharmacists (N.C. officers).
- 9 servants.

The medical officers are, as far as possible, to be taken from the active list, and in case of deficiency in that, from the 1st or 2nd class reserve.

*Stationary Field Hospitals.*—A stationary field hospital is intended to receive patients from the field hospital, the place of which it takes, so that the latter can advance.

It is not to move with the fighting line like a field hospital, but is to receive patients at a fixed place, continuing its work until there is an opportunity of sending them back.

The chief of a stationary field hospital is a surgeon-major or surgeon-captain, and the strength of the *personnel* varies according to requirements.

*Reserve Medical Store.*—On mobilization, one reserve medical store is allotted to each Division, and named after the Division to which it belongs. The following is the establishment:

- 1 chief store master (lieutenant of train).
- 1 train N. C. officer.
- 6 train privates (2 shoeing smiths).
- 1 pharmacist (officer).
- 2 pharmacists (N. C. officers).
- 2 mechanics.
- 1 clerk.
- 2 servants.



The reserve medical store is located in a place convenient for the despatch of supplies to hospitals, etc., as a rule at the most advanced stations, or where there is railway or water communication.

If one portion of the army becomes detached, a reserve medical store is attached to it.

*Transport of Patients.*—On mobilization, a staff to arrange for the transport of patients is organized in each Division. It is named after the Division to which it belongs, and comprises:

- 1 major or captain, as chief
- 2 medical officers (surgeon-captains or surgeon-lieutenants).
- 1 chief attendant (N. C. officer).
- 2 attendants (N. C. officers).
- 1 clerk (N. C. officer).
- 2 orderlies.
- 3 servants.

As a rule, the transport staff is located at the most advanced station of the line of communications, or where there is either railway, ship, or other convenient means of transport, the existence of houses, etc., for the reception of patients being taken into consideration. On the advance of the fighting line, the transport staff also advances.

*Field Hospitals.*—The function of the field hospital is to receive the wounded from the dressing stations, or directly from the fighting line, and to transport them to the rear, gradually relieving the dressing stations, so as to enable the bearer company commander to advance or retire without hindrance.

Field hospitals are called by the names of their Divisions, counting from No. 1 to No. 6 in each Division. The *personnel* and equipment of each are so organized as to be divisible into two equal parts.

A field hospital should be as near as possible to the dressing station, easily seen, sheltered from the enemy's fire, and convenient for the transport of wounded.

*Dressing Stations.*—The dressing station is established near the fighting line, in such place as can be easily found by the soldiers, is out of the enemy's fire, convenient for the transport

of the wounded, and when possible in the vicinity of good water, and in hot weather in the shade.

Its function is to receive wounded men from the fighting line, and to permit of their being medically treated before transfer to the field hospital.

*Hospital Ships and Transports.*—These are used when suitable water communication is available.

*Medical Organization of the different Arms of the Service.*—The establishment of medical *personnel* with units is as follows.—

*Infantry Regiment:—*

- 2 surgeon-captains (one officer may be a surgeon-lieutenant-colonel or a surgeon-major).
- 4 surgeon-lieutenants.
- 3 chief attendants.
- 12 ordinary attendants.
- 48 reserve bearers (trained soldiers belonging to the regiment).

*Cavalry Battalion:—*

- 1 surgeon-captain (or surgeon-major).
- 1 surgeon-lieutenant.
- 1 chief attendant.
- 1 ordinary attendant.

*Battalion of Artillery:—*

- 1 surgeon-captain (or surgeon-major).
- 2 surgeon-lieutenants.
- 1 chief attendant.
- 2 ordinary attendants.

*Battalion of Engineers:—*

- 1 surgeon-captain (or surgeon-major).
- 1 surgeon-lieutenant.
- 1 chief attendant.
- 2 ordinary attendants.

*Battalion of Train:—*

- 1 surgeon-captain (or surgeon-major).
- 2 surgeon-lieutenants.
- 3 chief attendants.

*Veterinary Department.*—The officers of the veterinary service are recruited from students of the veterinary school. They are classed as non-combatants, but have a hierarchy of their own, the highest grade of which ranks with that of major.

*Uniforms.*—The uniform is of dark blue cloth with green facings.

Hospital Ships, of which there are two in the Navy, and 3 in the Army—each in charge of a large staff of highly trained surgeons and nurses,—are used when water communication is available. In great emergencies Transports are also pressed into the service.

Too much praise cannot be bestowed upon the Medical Departments of the Army and Navy for their splendid *preparatory* work in this war. The Japanese are the first to recognize the true value of an army Medical Corps. Care of the sick and wounded consumes but a small part of their time. The solution of the greater problem, preserving the health and fighting value of the Army in the field—by preventing disease, by careful supervision of the smallest details of subsisting, clothing and sheltering the units,—is their *first* and most important duty. Their capacity for detail is something phenomenal; nothing seems too small to escape their vigilance, or too tedious to weary their patience, and everywhere—in the field with the scouts, or in the base hospitals at home, the one great prevailing idea is the prevention of disease. The Medical Officer is omnipresent. You will find him in countless places where in an American or British Army he has no place. He is as much at the front as in the rear. He is with the first screen of scouts with his microscope and chemicals, testing and labelling wells so the army to follow shall drink no contaminated water. When the scouts reach a town, he immediately institutes a thorough examination of its sanitary condition, and if contagion or infection is found he quarantines, and places a guard around the dangerous district. Notices are posted, so the approaching column is warned and no soldiers are billeted where danger exists. Microscopic blood tests are made in all fever cases—and bacteriological experts, fully equipped, form part of the Staff of every Divisional Headquarters.

The Medical officer also accompanies foraging parties, and with the commissariat officers, samples the various food, fruit and vegetables sold by the natives along the line of march, long before the arrival of the army. If the food is tainted or the fruit

over-ripe, or the water requires boiling, notice is posted to that effect, and such is the respect and discipline of every soldier from commanding officer to the file in the ranks, that obedience to its order is absolute.

The Medical officer is also found in camp, lecturing the men on Sanitation, and the hundred and one details of personal hygiene,—how to cook, to eat, and when not to drink, to bathe, and even to the direction of the paring and cleansing of the finger nails to prevent danger from bacteria. Long before the outbreak of hostilities he was with the advance agents of the army, testing provisions that were being collected for troops that were to follow—and as a consequence of these precautions, he is *not now* found treating thousands of cases of intestinal diseases, diarrhoeas or dysenteries, contagion and fevers that follow improper subsistence and neglected sanitation,—diseases that have brought more campaigns to disastrous terminations than the strategies of opposing generals, or the bullets of their followers.

It is much too early to submit statistical proof—but from careful observation I venture to predict the records of the Japanese hospitals will show a large reduction in the percentage of mortality from casualties, especially in penetrating wounds of the skull, chest and abdomen, and injuries to osseous structures—indeed of every variety of wounds, except perhaps those of the spinal cord, when compared with the statistics of former wars. Up to August 1, 9,862 cases had been received at the Reserve Hospital at Hiroshima, of whom 6,636 were wounded. Of the entire number up to that time, only 34 had died.

To July 20, the Hospital Ship Hakuai-Maru alone, brought 2406 casualties from the front without losing a single case in transit. Up to July 1, 1105 wounded—a large proportion of whom were stretcher cases, were received at the Hospitals in Tokio—none died, and all but one presented favorable prognosis. It is upon this, and much additional ocular evidence that cannot be here tabulated that the prediction is based. A contributing factor to this happy result has been the application of the principle of non-interference—by probe or otherwise, except by

first aid dressings or immobilization of limbs on the battlefield, and the thorough antiseptic methods in after treatment.

But it is in that far more terrible and pathetic class of losses—the needless sacrifice of 400 lives to preventable disease, for 100 who die legitimately (as history has shown occurs in every war) that the most astounding reduction will be shown. If the testimony of those conversant with the facts can be accepted, supplemented by my own limited observations the loss from preventable disease in the first six months of this terrible conflict, will be but a fraction of one per cent. This, too, in a country notoriously unsanitary. Compare this with the fearful losses of the British from preventable disease in South Africa—or worse—with our own losses in the Spanish-American War—where in a campaign the actual hostilities of which lasted 6 weeks the mortality from bullets and wounds was 268 whilst that from disease reached the appalling number of 3862, or about 14 to 1, or 70%, one per cent. against 70%.

Regardless of the ultimate outcome of this terrible war, history will never again furnish a more convincing demonstration of the benefit of Medical, Sanitary and Commissary Departments, thoroughly organized, equipped and *empowered* to overcome the silent foe.

Every death from preventable disease is an insult to the intelligence of the age. When it occurs in an army, where the units are compelled to submit to discipline, it becomes a governmental crime. Witness the French campaign in Madagascar in 1894 where, of the 15,000 men sent to the front, 29 were killed in action, and over 7,000 died en route, to and from the scene, from preventable causes.

The Japanese do their killing, but they do it differently. They too have their tragedies, but they are legitimate tragedies of grim war, not governmental murders through criminal neglect. By the methods, I have faintly described their recognition of the importance of preventive Medicine and Sanitary and Commissariat supervision, they have doubled the fighting efficiency of their army, and reduced to a minimum the loss from preventable disease.

Naturally one asks—were these results anticipated? As an answer, the statement of a distinguished Japanese officer, when discussing with me the subject of Russia's overwhelming numbers, is pertinent: "Yes," he said, "we are prepared for that. Russia may be able to place 2,000,000 men in the field. We can furnish 500,000. You know in every war 4 men die of disease for every one who falls from bullets. That will be the position of Russia in this war. We propose to eliminate disease as a factor. Every man who dies in our army must fall on the field of battle. In this way we shall neutralize the superiority of Russian numbers and stand on a comparatively equal footing."

Compare this with the attitude of Russian officials in the far East as stated by Captain Gunderson—Russian Commander of the Steamship *Unison* wrecked off the Miaotau Islands last August as she was attempting to run the blockade at Port Arthur. I was on the wreck three days in company with my friend Captain Boyd, 10th U.S. Cavalry—and Captain Gunderson repeatedly assured us that no one in Russia ever had any idea Japan really intended war. As an evidence he cited a conversation with his brother-in-law, who is the Russian Surgeon General at Vladivostok, and who said: "Oh there will be no war. If Russia expected war I should be the first to know it, so my hospitals could be in readiness. As it is, I have never been so short of supplies as I am today. There will be no war." That night Admiral Togo torpedoed the Russian squadron, and practically closed Port Arthur to the outside world.

What was true of the Russian Medical Corps was equally true of every branch of the Russian Service in Manchuria. "There will be no war," echoed the newly arriving officers; and the carnival of revelry that has marked the Muscovite invasion since 1898 was intensified by added numbers. Arriving trains that should have been crowded with men and munitions of war, brought each a full compliment of the demi-monde and vodka. The thousands of these creatures and tens of thousands of cases of vodka that passed over the Siberian railway, in place of food and equipments must have horrified even the gentle Verestchagin, familiar as he was with war, in its most brutal and bestial aspects. Had he lived

to portray recent scenes in Manchuria he could have revealed to the victimized suffering masses at home a perfect nightmare of debauchery, apathy, and criminal carelessness. His historic picture of a battlefield in the Russo-Turkish war, with the dead and dying soldiers lying bleeding in the distance, while in the foreground, the Russian headquarters were strewn with empty champagne bottles and the rags of harlots, had its counterpart in the scenes that greeted the eyes of the observer at Port Arthur, Newchwang and Vladivostok. Wine, women and song, were certainly the undoing of Russia, where a beauty and a bottle were the highest ambition of its officers—from General to Corporal. Sodom and Gomorrah—the current synonyms of Port Arthur and Vladivostok, in the Orient, were temples of virtue in comparison to the debauchery, licentiousness, flagrant immoralities and openly flaunted vice recently practiced in those unhappy cities. *This was Russia's preparation for war.* But, if the bloody conflict now waging serves to awaken her from her terrible nightmare, and brings about her moral regeneration (and nothing less than such a catastrophe *can* do it) then civilization will ultimately be promoted and the masses of suffering humanity in that grand country will come in some measure by their own. But as Kipling says, "this is another story "

You have heard how elaborately and with what wonderful perfection of detail the Medical Department of the Japanese Army is organized. The nation is not rich; and the creation of this great establishment and its careful and studied work, has been for the definite purpose that is now showing such magnificent results. Japan is the first country in the world to recognize that the greatest enemy in war is not the Army of the Invader, but of that foe more treacherous and dangerous—preventable disease, found lurking in every camp, whose fatalities as I have said before and will reiterate again and again, have, in every great war of history numbered from four to twenty times as many victims as all the mines and bullets and shells of the invader. It is against this enemy that Japan has made her hardest fight and attained her most signal victories—victories that have kept her men in superb condition, to respond to the call of their leaders and achieve the

dashing, brilliant successes that have marked their triumphal progress from the Yalu to Liaoyang in the teeth of the Russian foe, entrenched and fortified—whose units are no cowards, but who fight with the bravery of fanaticism and the courage of desperation.

Gentlemen, from the standpoint of a humanitarian, and a lover of his kind, I tell you it was a positive delight to visit that great series of hospitals, from Tokio to Sasebo, with their long wards filled to overflowing with wounded, suffering soldiers—the *legitimate* victims of war, their faces full of health and hope, despite their fearful wounds in the long, hard campaign of five or six months in Manchuria,—their chief desire to know how soon they could rejoin their comrades,—and to contrast them, in memory, with the vivid picture of the poor, wan, emaciated and almost hopeless faces that crowded the wards of our hospitals in Cuba and Porto Rico, in Tampa, Chattanooga and Camp Alger (Heaven save the name!) and Montauk Point in 1898—and in the Philippines in 1899 and 1900—the *innocent, unwounded and illegitimate* victims of another conflict, which, in comparison with the one now waging, would be considered no more than a skirmish among outposts. *If wars are inevitable, and the slaughter of men must go on*—(and I believe wars *are* inevitable, and that most of them are ultimately beneficial,) let our men be killed *legitimately*, on the field, fighting for the stake at issue,—not drop them by the wayside by preventable diseases as we did in the Spanish American war—1400, for every 100, that died in action. It is for the 1400 poor devils who are sacrificed—*never* for the 100 who fall gallantly fighting, that I offer my prayer.

And yet, should occasion arise for the gathering of another army of 250,000 next summer, what evidence is submitted to prove that the lamentable scenes of 1898 with all their nauseating details would not be repeated? Where, as in Porto Rico, Tampa, and Chattanooga no fighting was done,—but where more sick and invalided were gathered at one time than would overload any dozen transports and hospital ships with men who never smelled powder, or saw a hardship of real war, and who, had they been properly subsisted on the principle of the Japanese today, would



have returned to their homes and vocatlons healthy and happy as after a summer's outing? I ask what tangible evidence is submitted to show that history would not repeat itself, and that such an army gathered hastily, would not again be brought almost to its knees, through the same ignorance and incompetency? We have recently heard much of the reorganization of the American Army, and the creation of a General Staff. Commanding that Staff is an officer, as courageous, as gallant, as heroic and, I believe, as representative as ever drew a sword, and yet the importance of this momentous subject—the study of preventable disease, and the saving of eighty men out of every 100 that always die in war, is considered of such minor import, that no place was found on it for a Medical Representative.

The three great lessons to be learned from the Japanese War are from the Medical, the Commissariat and Transport Department. The Japanese authorities permitted our government to send five military attachés to accompany their army in the field. Was a Surgeon, or a Quartermaster, or a Commissary officer detailed? No. They represented the *life-saving* and *life-preserving* departments, and they were omitted. The killing department got the appointments, the cavalry, ordnance, infantry, etc., and today Japanese officers are laughing in their sleeves at our senseless failure to have representatives on what they consider their three vital points, whilst the only weak, almost burlesque feature of their army, its cavalry, is considered of sufficient importance to be worthy of special study. Certainly "it is to laugh." But what can be expected of a government that, after its terrible lessons of 1898-9 still insists—especially in the tropics—on subsisting its army on a ration so rich and elastic, (lovely term, that, elastic), so *elastic*, that when in the emergency war, its elasticity is *tested* it bursts its bands, and is found to consist of pork and beans and fermenting canned rubbish, that in 6 weeks prostrates 50% of its 250,000 units with intestinal diseases, and sends 3,000 to their last homes—to say nothing of the enormous number invalidated, and the 75,000 pension claims? That, in its famous army reorganization fails utterly to recognize one of the most important of all the departments, namely, that of sanitation, as it is recognized by the Japanese today? That holds its great life-pre-

serving department in such light esteem, that but one officer in the entire army can even reach the rank and emoluments of a brigadier-general? That on its general staff fails to have a single representative of this department—or, if any—only a young, inexperienced man of inferior rank, instead of the ablest and most experienced officer in, or out of the service—one of international reputation, like our retired Surgeon General Sternberg, whose rank should not be less than of a Major General, and whose opinions would carry weight in councils of war? I tell you, gentlemen, rank and its emoluments count. Without the position, its pay and its dignities, especially in the army, it is impossible to enforce the respect and discipline necessary for obedience and order. This is the curse, and cause of failure of the British Medical Service also, where, instead of "Saw-bones," its representatives are contemptuously termed "Pills" and "Bubo Lancers," and which, in its organization is as far behind Japan as are the Americans. Herbert Spencer in his *Synthetic Philosophy* refers to "the ill-treatment accorded the medical officers of the English Army," as "a late survival of the days of feudalism and contempt for the purely scientific." What, I say can be expected from a Congress, so devoid of business principles, that it prefers pensions, to prevention? That even now seeks by legislative enactment to prevent its guardians, when in the uniform of their country, from wearing the medals won in its defense—bits of ribbon, for which, since the days of knighthood and chivalry, men have laid down their lives on the field of honor?

Of a Congress that permits a lot of well-meaning, but misguided fanatical women to degenerate its army by depriving it of one of its most beneficial features,—a well-regulated canteen,—the outgrowth of the best thought and experience of able, trusted officers, thereby driving its fighting units to low grogeries and brothels, from which they are frequently brought back by the patrol, candidates for the guard house or venereal wards of the hospital, or both. Why, I ask again, should we expect reforms from authorities who, in their great preparatory schools, West Point and Annapolis, furnish the cadets practically no instruction in the important studies of physiology and hygiene, so that when

they come to command the fighting units of the army, they can be prepared to guard them against the silent foe which scores 80% of the deaths? Like the rest of the world, we go blundering on, spending millions annually for the maintenance of these great military schools and arsenals and war colleges, educating men in the art of human destruction, while the more formidable adversary in the ranks,—the grim spectre that kills 80%, is left comparatively unheeded?

Gentlemen, it is time for this Association of military and naval surgeons to voice its sentiments in no uncertain notes—to demand another reorganization of our army wherein that branch of the service that grapples with the silent foe that kills 80% shall be recognized with equal rank and emoluments, with the other branches, who, all combined, oppose the enemy who kills only 20%, and whereby the government of the United States shall give to its guardians the rights to which, as citizens of the republic, they are justly entitled. The State deprives the soldier of his liberty, prescribes his exercises, equipment, dress, diet, the locality in which he shall reside, and in the hour of danger expects him, if necessary, to lay down his life in its defense and honor. It should, therefore, give him the best sanitation and the best medical supervision that the science of the age—be it Japanese or Patagonian—can devise. How this great moral obligation has been fulfilled in a land which fifty years ago was regarded by the Occidental world as semi-barbarian, I have endeavored to show. If we cannot improve on this system, then we had better meekly follow—for I unhesitatingly assert, we are as far behind the Japanese in matters of military medical organization and sanitation as were the disciples of Confucius in the days of Kublai Khan—further indeed—for they at least exercised instinct instead of so-called brains, in the selection of their food and the care of their stomachs.

Perhaps the day is not distant when another summons will come to join the Army of the Republic,—when the first call may be, not as in the great Rebellion for 60,000 men,—nor as in the Spanish-American War for 250,000—but when, more likely it will be for a round half million, to be followed possibly by another

of equal number. And a question will be asked by the young patriot of that day,—not *who* the enemy is he is to meet—no, the American boy is *not* built that way,—but he will demand to know what measures have been taken to ensure him against the silent enemy who kills the 80%. And when he learns the same prehistoric regulations as to sanitation, and protection against this foe are in force as they were in 1904, will he respond to his country's call? Yes, he will—for that is the way the American boy is built—And he will follow, as did his forbears, in their footsteps—and he will fall by the wayside as they did before. And history will record another crime.—

"We see by the light of thousands of years,  
And the knowledge of millions of men,  
The lessons they learned through blood and in tears  
Are ours for the reading, and then,  
We sneer at their errors and follies and dreams,  
Their frail idols of mind and of stone,  
And call ourselves wiser, forgetting it seems,  
That the future may laugh at our own!"

#### DISCUSSION.

SURGEON CHARLES FRANCIS STOKES, U.S.N.: I would like to say a word in connection with this interesting paper. From the early fall of 1892 for nearly three and a half years I lived among the Japanese while serving in our naval hospital at Yokohama. During that period I saw nothing in the physical make-up of the people to attract special attention. I have operated upon them and have treated them in other ways and I noticed that wounds among them when improperly treated are followed by infection, and they showed the same signs of suffering from infected wounds, and cringed from the knife, just as people of other nations do.

The abstemious habits ascribed to them did not give them freedom from diseases of the digestive organs. When exposed to the same infections, digestive and otherwise, as we, they die as we do. During my stay in Japan whole communities died from dysentery, but through adopting the hygienic measures taught by other nations and living up to them, they have been able to cause a marvelous fall in their appalling death rate.

The Japanese have displayed good judgment in the selection of the best of what is going, they have faithfully lived up to that best, and why? First, because they have been intelligently and without prejudice backed up by their government from the highest individual in it to the lowest; second, because they have no bad practices and old prejudices to stumble over and to hamper them,—their field is new. They have been preparing for this conflict for ten years; it has been their one aim and object year in and year out;

they have lived for this great effort and now that it has come they are found well prepared. I feel that Major Seaman's statistics are premature. The Japanese practice no sanitary or surgical measures not taught in our service schools today. Their efficiency shows rather what a proper appreciation of the importance of the Medical Departments of the Army and Navy can bring about when it is intelligently backed up by the powers that be.

Our conflict of 1898 was rather precipitate and some of us may have been unprepared but I believe inquiry into the matter will show that the fault did not lie with those of the two arms of the service.

This paper is full of forceful and timely suggestions. I wish Major Seaman had given us some of the Japanese statistics of ten years ago for comparison.

In regard to beriberi, I do not think it a question of diet but one of toxæmia. I have had beriberi myself. At the time I was infected I was living on the best of diets, under excellent hygienic conditions and was practicing habits fairly good. [Laughter.] It is my belief that the infection was incurred at Colombo, Ceylon, for I did not leave the ship for four or five weeks when the symptoms showed themselves.

I believe that the disappearance of beriberi from the Japanese Navy was not due entirely to their improved ration, but merely coincident with it, for with the improved ration went sanitary and other improvements, all along the line. [Applause.]

MAJOR SEAMAN: I wish to follow up this subject with a suitable set of resolutions. [The resolutions were then referred to the Executive Council and being reported back as follows, were unanimously adopted:]

*Resolved*, That the Association of Military Surgeons of the United States now assembled, respectfully petitions Congress at its next session to reorganize the Medical Departments of the United States Army and Navy on a broad basis similar to that of the countries most advanced in military sanitation, giving to their officers equivalent rank, dignity and power, and to their personnel ample numbers for the proper care of the ill and injured in military and naval service.

*Resolved*, That this Association recommends that the sale of beer be permitted at Army post exchanges subject to such regulations as shall be determined by the General Staff and the Secretary of War.

*Resolved*, That while appreciating the fact that military sanitation has finally been introduced into the general scheme of military instruction and has been made a requirement in the examination of Second Lieutenants for promotion, nevertheless this Association believes that an adequate knowledge of "the care of troops" is of such vital importance to our Army that it should be given adequate recognition in all our Army and Navy schools and especially in the Staff College and War Colleges, and that the present courses at West Point and Annapolis should count in the requirements for graduation; it therefore respectfully petitions the President to make this resolution effective.

## THE APRON STRETCHER.

By GEORGE A. LUNG, A.M., M.D.,

SURGEON IN THE UNITED STATES NAVY.

**P**ERHAPS nowhere in the world are surgical injuries so likely to occur and in such infinite variety, and perhaps nowhere else are there so many unavoidable obstacles against their easy and favorable treatment as on a modern man-of-war.



**Parts of Apron Stretcher Separated.**

Owing to the crowding of men in relatively small spaces, the employment of complex mechanical contrivances, and the hazards of unusual occupations, many accidents are not uncommon.

These conditions that prevail daily in times of peace are aggravated a hundred fold during an engagement. Then the hurry and excitement, the dangers incident to handling explosives and ammunition, and the firing of various weapons of war, to say nothing of the countless dangers imposed by the enemy, multiply the chances for injuries innumerable.

Accidents from within the ship itself, or violence inflicted by the enemy from without, may prostrate half a ship's company, and the character of the injuries will vary from slight contusions

to complete destruction of the body. The possible variety of wounds and their degrees of violence are infinite.

How to treat these wounds is a question that would be a comparatively simple one if it were only a matter of applying our best known skill and mechanical contrivances. But battles on land and battles on sea present widely different conditions from those that are encountered in civil practice. In the former battles are often remote from hospitals, and the contour of the country will not admit the use of ambulances. Moreover nurses and attendants may meet with the same fate that has come to those they would render aid. Surgical skill is hampered by lack of ordinary facilities, and septic influences are unavoidable.

But bad as these conditions are on a battle field, they are apt to be far worse on a battle ship for here we have all the dangers of the battlefield plus cramped quarters, complex construction of the ship, and the continuance of the dangers to the wounded as well as those who are able to continue the fight.



**Empty Apron Stretcher.**

In a battle on land the fighting line will probably shift its position, leaving the wounded a little later in a zone of safety, or if it remain fixed, provision can be made for removing them to a point of comparative safety, from which they can be moved later to a still safer place and finally treated. Or at the worst they can be so placed for the time being movements of others continue the action. During an engagement the ship do not enjoy the immunity granted by the red

ed they will be safe and not hamper the others who are able to

During an engagement the wounded on board the ship do not enjoy the immunity granted by the red cross. They remain



within the target continues to fire. These conditions are not made able or unfavorable in the conditions of two services, but of showing how exist on battle conditions which are the difficulties

Showing ease with which Apron Stretcher may be carried empty.

at which the enemy These comparisons produce a favorable impression regarding that prevail in the with the intention special conditions ships. And these we have in mind, in handling wounded

men owing to the complex structure of a ship.

Unless one has been on a modern man-of-war and examined its interior construction he can have no correct notion of what the naval surgeon has to contend with in his care for the injured.



With its mass of machinery, its tangle of pipes, conduits, wires, rods and hoists, its labyrinths of compartments, its maze of long narrow and often tortuous passages, its hatchways leading down to depths or opening up to lofty elevations, it is confusing in the extreme. The structure is as complex as the human anatomy. The multiplicity of barriers are as embarrassing as those artificial obstructions one encounters in an obstacle race. Even for a healthy sound man to move about within a man-of-war, such as we have in mind, calls for almost the constant use of both hands and feet, and more than ordinary agility.

There are coal bunkers into which men go, work and are sometimes injured, the only exit from which is through a circular opening twenty inches in diameter. There are military tops many feet from the deck in which men are stationed in time of battle, and while there they may be severely wounded. Access to and from these tops is through a small aperture in their floor and down many feet by perpendicular ladders, and over bridges and various platforms. There are fire rooms whose only means of egress,



Lowering a patient from the fighting top.

especially during an engagement is a perpendicular ladder twenty or more feet in height. And so one might go on naming many similar difficulties encountered in going from one part of a ship to another. How then is the surgeon to handle safely the injured with all these conditions existing?

Where ever the patient may be at the time he receives the injury, the time will come when, either during or after the en-

gagement, he must be moved elsewhere; it may be to some other part of the ship or to another vessel, and on the manner of his removal will depend in a large degree the question of his recovery.

Thus special methods are demanded and the ingenuity of the naval surgeon is taxed to the utmost.

Probably the stretcher that will meet all possible conditions

will never be constructed, since the difficulties, particularly on a battle ship, will always remain in a degree superior to the cleverest contrivances.

In taking up the problem of inventing a stretcher that will meet all the requirements that may be made of it on board ship, the writer has asked himself two crucial questions:

First. How would you bring a man who had been rendered helpless by a severe injury, say a fracture of both femurs; down from the upper forward fighting top to the sick bay of such a ship as the *Kentucky*? A healthy agile man, free handed and free footed, would come down climbing over the following structures:—Through the lubbers hole in the floor of the top,



Bringing a patient down a ladder.

down by a ladder let in the side of the mast to the lower fighting top, thence through a similar lubber hole, and down a similar ladder to the search light platform, thence to the bridge on top of the pilot house, thence down a narrow stairway to the forward bridge, thence down another ladder to the fore and aft bridge,

thence down another ladder to the upper deck, thence forward twenty or thirty feet to another ladder to the main deck, thence down still another ladder to the berth deck on which the sick bay is located. Excepting the ladders on the side of the steel mast, all the other so called ladders are really flights of stairs made of steel, and inclined at an angle of forty-five degrees, and about twenty inches wide from side to side. Their sides are protected by hand ropes, that is a single rope on which one ordinarily holds in going up or down.

Second. How would you move a man equally severely injured from the lower platform in the engine room to the sick bay.

The first question covers the possibility of carrying a man from one of the loftiest heights of the ship, and the other from practically her lowest depths. And in both these places men are employed and



Some of the difficulties of transporting a patient from the engine room.

likely to be injured under certain conditions. The journey from the engine room represents a distance nearly as great as that from the fighting top and the obstacles are more numerous and difficult to overcome. Several more steeply inclined ladders would have to be climbed, one or two narrow plat-

forms traversed, and a narrow hatch or two crawled through. Nearly all these movements would have to be made where even a moderate sized man could not stand erect, and in close contact to a tangle of enginery that may be in motion.

The writer concluded that if a stretcher could be devised that would fairly meet these two tests, it would be equal to almost any other demand that might be made upon it.



**Patient in Apron Stretcher being lifted out of turret.**

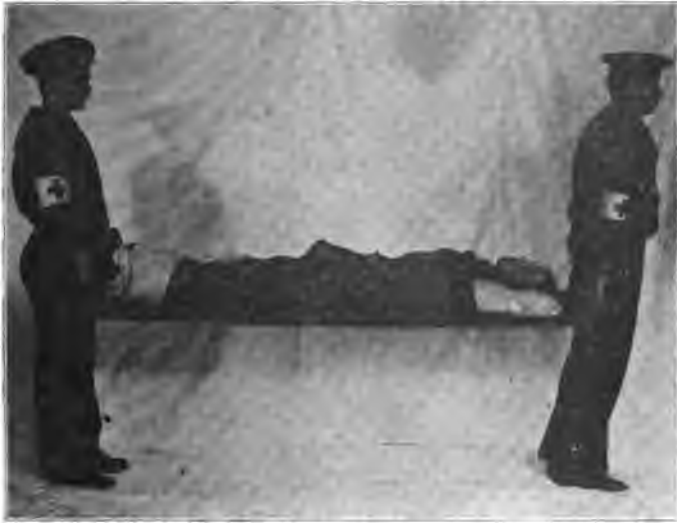
In designing a stretcher it must be borne in mind that it must be constructed in such a way that it will be equal to the worst case that is likely to occur. Again the particular stretcher we are aiming at should, in addition to the surgical features it must possess, be so constructed that it will readily conform to the conditions that prevail where it is to be used.

The first thing that surgical art teaches us is that the patient in being moved must be handled with the utmost consideration. His body must be carried in such a way that it is positively at

rest and there is no localized movement of one part on another. To this end the first thing that suggests itself is some sort of a splint to be applied to his entire body, thus providing in a general way for all kinds of injuries in whatever part of the body they may occur.

If by some subtle art we could temporarily render the body of our patient rigid, we would have an ideal condition to aid us.

If a light, strong, closely fitting metal sheath could be applied to his body in such a way that it would occupy but a fraction of an



**Apron Stretcher carried by two attendants; Hammock Mattress included with patient.**

inch greater than his own exterior, we would likewise have an ideal arrangement. But the mechanics of such a plan is beyond our capabilities, and moreover it would not be practicable since men differ so much in size and shape no one frame would fit any two men.

What seemed best was a platform like arrangement a trifle larger in area than that occupied by the body of the patient. This platform must be sufficiently strong and rigid to retain its

splint like action with a heavy weight upon it, and at the same time present a surface that will be somewhat yielding to the conformation of his body.

And having determined the base on which to place the patient, the next consideration was how to secure him there, for some device to accomplish this was necessary since our patient could not always be carried in a horizontal position ; indeed there would be occasions when he must be held vertically.



**Apron Stretcher with patient secured; manipulated by one attendant.**

These two requirements settled, a third arose, namely; suitable handles by which to grasp or suspend the contrivance.

These three requirements are regarded as the prime essentials of a stretcher that will answer our purpose.

Besides these three essentials there are other features which it should possess.

It must be made sufficiently large to accommodate the largest man that may be placed upon it. At the same time it must be so small that it may be carried along and through or up and down the confined places where it is to be used. The smaller it is, so

long as it will safely splint the patient, the better will it be adapted to our purpose. Besides its smallness of bulk is a great desideratum when it comes to the question of stowing away a number of them on board ship or other places where space must be economized.

It must be constructed in such a way that the patient can be quickly placed upon it and in the shortest time possible secured for transportation.

It must be light in weight to enable its being carried readily when empty, and not be cumbersome when the patient is on it.

It must be sufficiently strong to bear the weights that will be placed upon it, and to endure the rough usage it is likely to be subjected to.

The material from which it is constructed must be so disposed that it will not splinter and thus inflict injury if struck by a missile.

It must be simple in construction so as to facilitate its ready application and not involve undue expense in its manufacture.

The writer has endeavored to devise a stretcher with all these requirements in view. He feels that he has accomplished all the prime essentials as well as the other desirable features before named.

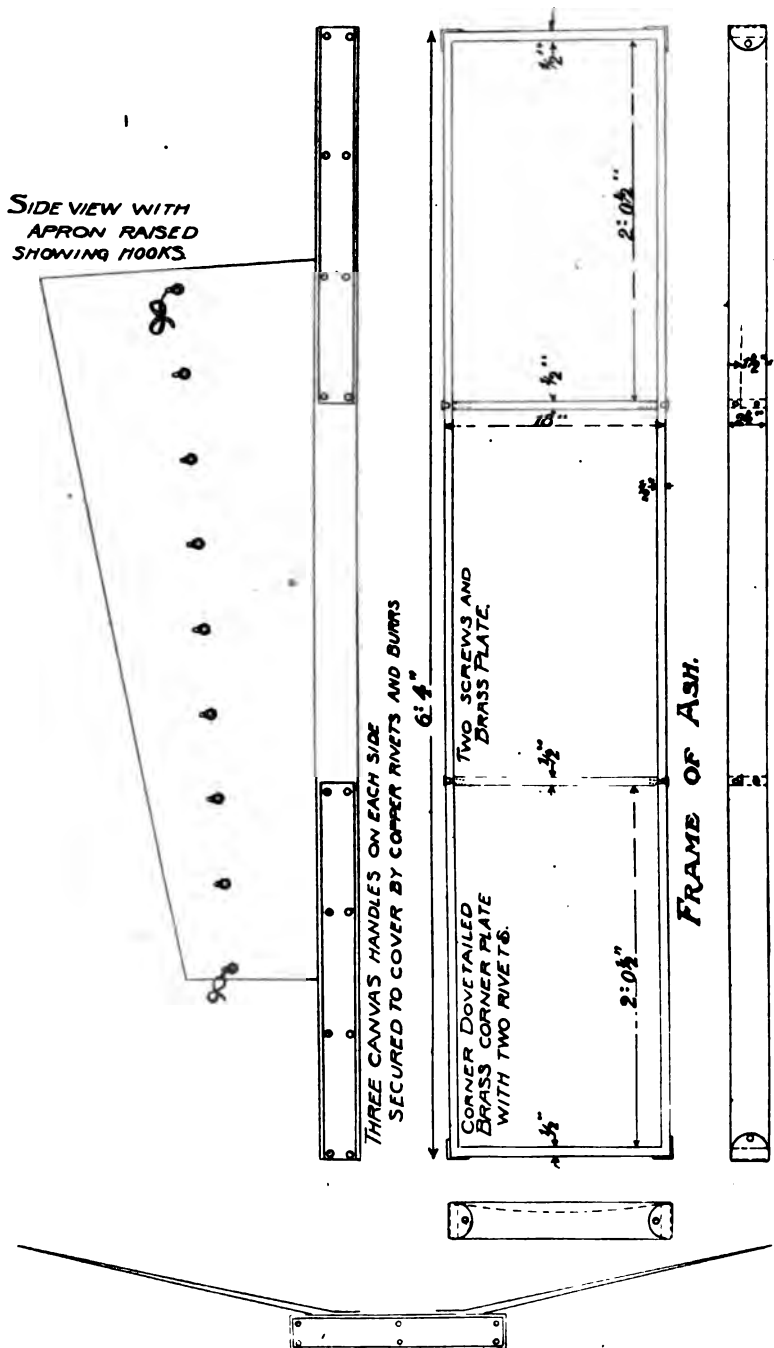
Because of the apron like arrangement for securing the patient to the stretcher he has named it "The Apron Stretcher."

The accompanying drawings and photographs will serve to explain its construction and uses in detail.

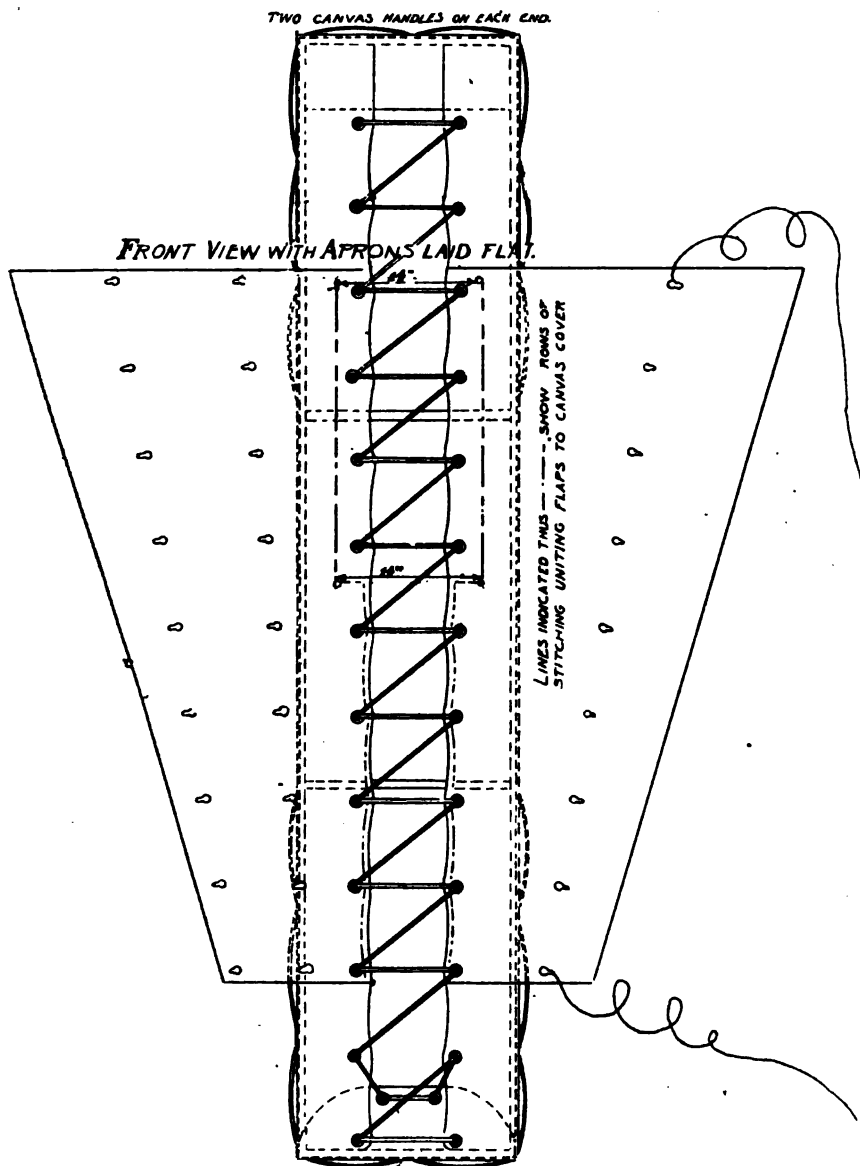
In general it may be described as follows:

Over a light ash frame is stretched a canvas covering or bag. One side and end of this covering is left open so as to allow the frame to be introduced, after which it is tightly laced up. This combination of ashen frame and canvas cover constitutes the splint base, locally soft and yielding to the body, but structurally strong and rigid.

To one side of this covering are secured two flaps or aprons as indicated in the drawings, which are folded over the body of the patient from his axillae to his ankles, if need be, and then secured by hooks and lacings, quickly fastened in the same way as the ordinary lace shoe is fastened. At both ends and a part of the length of both sides, handles are placed by which to grasp and lift or suspend the apparatus.



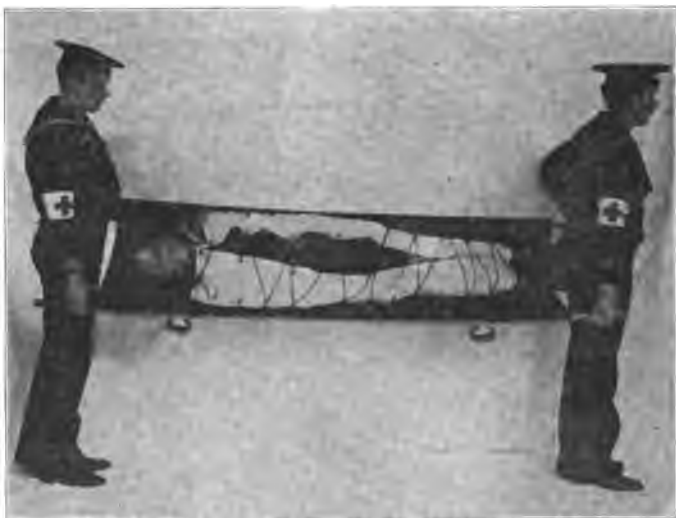




The Apron Stretcher—Details of construction.

In securing the patient in this stretcher his arms may be left free thus adding to his sense of comfort, and he may be able to assist a little in his own transportation, or one or both may be included in the apron fastening.

Before lacing up the apron, if it appears desirable, splints, cushions, or padding of any kind may be included. The ordinary hammock mattress may be fastened in with the patient to add, perhaps, to his comfort and safety. In most cases nothing additional is needed. If the case treated happens to be a fracture of the femur, the stretcher alone without other splinting is suffi-



**Apron as applied to the standard Army Stretcher.**

cient for the time being, the buttocks sinking deeply in the canvas side and lacing. If it is a case of fracture of the humerus, the arm may be placed along side and a little to the front of the thorax and held there by the apron until more elaborate treatment is applied later on. Or if it is a fracture of the forearm it may be laid across the front of the abdomen and into the groin and likewise held temporarily by the apron.

If pressure on any part of the patient within the aprons application is contraindicated, the lacing may be interrupted at the proper intervals, instead of being laced continuously.

Once secured within the apron the patient can not fall out, suspend him in whatever way you choose. The apron conforms closely to the shape of the patient and renders a uniform and even support to all that portion of his body enclosed by it. This feature suggests its use as a straight jacket.

I regard the apron attachment as the most important feature of this stretcher. The platform to which it is attached is more or less a modification of already existing contrivances, the modification securing, in addition to lightness, a moderately soft and yielding surface for the patient's body. I do not know that any arrangement for handling the injured like this apron has been invented.

I have applied this apron to the standard army stretcher and experimented with it with excellent results.

This particular stretcher weighs ten pounds or less. Its cost is insignificant.

Being light in weight many of them can be transported with but little expenditure of effort, and being less than three inches in thickness, many can be stowed away with great economy in space. One dozen of them packed carefully would make a pile less than three feet high.

Should occasion demand it, and in places not offering too many obstacles, this stretcher with a patient on it, could be handled by one attendant. Two could do so in most places by grasping the handles at either end. And handles are provided so that three, four or more may seize hold if necessary.

The original intention was to devise a stretcher that would satisfy the needs that exist on board a naval vessel. The result shows a possible range of application far beyond this.

It may be employed as a stretcher for special uses such as lowering disabled persons up and down ladders, steep stairways, from aloft, over a ship's side, in narrow and confined spaces, in buildings or under ground, in and out of passenger coaches by the window or from the windows of buildings when other means of egress are excluded.

Its lightness in weight and smallness in bulk particularly adapt it for ambulance service.

## THE OPERATION FOR THE RADICAL CURE OF VARICOCELE.

BY LIEUTENANT COLONEL AUGUSTIN AGUIRRE,  
MEDICAL DEPARTMENT OF THE MEXICAN ARMY.

**V**ARICOCELE being a disease relatively frequent in Mexico, and also as it incapacitates soldiers for military duty (when it has reached an advanced stage and is painful) I wish to call your attention to a surgical process for radically curing the disease; a method at once simple and effective, which has been employed for some years by Casimiro Preciado, ex-Surgeon Major of the Mexican Army.

It consists in employing at the same time transverse resection of the scrotum and the excision of the bundle of varicose veins.

Before passing to a description, let us study the indications for this operation. Radical treatment for varicocele is indicated for the following cases: (1) when it is very far advanced; because then the vitality of the testicle is seriously involved; (2) when it is painful and causes the patient great disturbance; (3) when it causes atrophy of the testicle and impairs its functions by weakening the genital faculty; (4) when it causes serious nervous perturbation, such as neurasthenia, psychic disorders, tendency to suicide, etc.

In describing the operation we will begin with the preliminary steps. The day before the patient is to be given a purgative, he must be perfectly washed, the pubis and testicles shaved and besides a moist antiseptic dressing applied and left in place twenty-four hours.

For the operation it is necessary for the patient to be anesthetized, using chloroform or ether, or by applying cocaine by the Tuffier method, or locally. This last gives very good results when one employs the Reclus method as modified by Preciado. This modification consists in applying the injection in the derma itself zigzag (the solution to be 2 per cent.) that is, pricking obliquely and alternately on both sides of the place to be cut so that

the anaesthetic solution acts on the right and left side covering a space two or three centimeters in width all along the line to be operated on.

TECHNICAL DESCRIPTION OF THE OPERATION.

The patient once insensible, you proceed to perform the operation, which may be divided into four stages. The patient should be placed flat on his back, the lower limbs straight out, a little way apart. The surgeon should be on the left and the assistant in front. The dressing which was applied the day before, is then removed. The spot to be operated on is then surrounded with aseptic linen and you proceed to the first stage of the operation.

*First Stage.*—Both testicles are now pushed towards the inguinal canals and a pair of very much curved clamp forceps are placed crosswise, pinching up that part of the scrotum to be resected, this, of course varying according to the size of the scrotum. The cut is made with a bistoury, including in this cut all the tissues of the testicle covering. The forceps are then removed and you have an ample wound. As the pouches are very vascular, and the wound has been made transversely, the number of small blood vessels cut is considerable. Here you proceed to the—

*Second Stage.*—This consists in complete hemostasis. All the blood vessels cut, however small they may be, should be tied up, because there have been cases in which, on account of not tying up a small blood vessel which was overlooked, serious hemorrhage has set in, and this necessitated the removal of the stitches in order to tie up the blood vessel and stop the hemorrhage. There have been cases where sixty blood vessels had to be tied. The hemostasis once completed to your entire satisfaction you pass to the—

*Third Stage.*—Dissection and ligation of varicose veins. As you raise the upper side of the wound, the two testicles and two cords are entirely uncovered so that the bundle of varicose veins is completely in sight. You then proceed easily to the dissection of the diseased veins, taking care, naturally, not to injure the deferent canal and the spermatic artery. The vein once isolated, a double thread of catgut is passed to make the ligatures on the

two ends of the varicose veins and the resection is done between the ligatures.

*Fourth, and Last Stage.*—The suture. This is done by planes; the deepest with catgut and the superficial ones with Florentine horsehair. An aseptic dressing covers the wound. Healing by first intention is the rule in all cases.

This proceeding has the following advantages:—

1. The resection of the scrotum gives for a result the formation of a real and natural suspensory which keeps the testicles in a good position and impedes a repetition of the disease. In some cases, although rare, the simple resection of the scrotum has sufficed to cure varicocele.

2. The ample wound which results, once the resection of the scrotum is finished, brings to view the two testicles and the two cords, so that this incision alone suffices for an operation for double varicocele, cyst of the cords, gumma of the testicles, etc., as has some times happened.

3. The dissection of the bunch of varicose veins is made much more easy because one sees at a glance the component parts of the cords and thus avoids wounding or tightening in the ligatures the spermatic artery or the vas deferens. Either of these accidents would be serious and of deplorable consequences. Also when the posterior bunch of veins is varicose, it is easier to dissect and resect them.

This method has been applied up to date in sixty cases. In all of them healing by first intention has resulted and the final result has invariably been satisfactory. In all cases the symptoms which induced this operation (such as neuralgia of the testicles, psychological perturbation, etc.) have disappeared entirely and the cure has been complete. Also in no case up to date has the disease returned.

#### DISCUSSION.

LIEUT. COL. HALLEY:—There is one objection I have to make to that operation, and that is tying the veins in a bunch; that is not good surgery. They will slip out and the bleeding is very disagreeable. In the second place it is almost impossible to prevent the wound sweating, and therefore it is best for the first forty-eight hours to put in a drainage tube so the sweating of the wound incident to the operation is avoided. For the last six or eight years I have followed that method of amputating the scrotum with results in every way satisfactory.

## ORGANIZATION AND WORK OF THE MARITIME QUARANTINE SERVICE OF THE ISTHMIAN CANAL COMMISSION.\*

By SURGEON HENRY R. CARTER.

UNITED STATES PUBLIC HEALTH AND MARINE HOSPITAL  
SERVICE,—CHIEF QUARANTINE OFFICER.

I AM asked to give a brief account of the organization of the Maritime Quarantine Service of the Isthmian Canal Commission and its work to date. If you find this in any way interesting, it will be because it shows that a fairly efficient quarantine can be conducted with very little obstruction to commerce; practically without apparatus and with the minimum personnel by utilizing the work of skilled officers at the infected ports, from which the vessels come.

In criticism of any quarantine, two things must be considered; first, the protection it gives and second the obstruction to commerce which it causes. The first should be the greatest possible and the second the least possible. It is easy to make a quarantine protective if no regard is paid to the burdens it places on commerce. It is equally as easy to run an unobstructive quarantine by risking the safety of the port to be protected. The end desired is the maximum protection with the minimum obstruction. As a quarantine answers to this test so is it good or bad.

A quarantine previously existed at Panama under the Colombian administration. There had been a quarantine for the last few years against plague. No plague was introduced during this time so that we cannot say that it failed to give protection. The accounts which vessel owners give of its operation, however, would show that *they* considered it decidedly obstructive to commerce. A vessel having aboard a few sacks of chick-peas in transit for Spain from Mazatlan, where plague had existed, was

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\*To September 26, 1904.

held something over three weeks and in spite of all the compromises offered by the agents, among which was to throw the peas overboard, the vessel was finally remanded back to San Francisco with her cargo unbroken. The same thing occurred several times with vessels from the south, one being held over four weeks, without disinfection, and was then allowed to land her transit cargo. Others were held weeks and then remanded back without breaking bulk or landing passengers.

Yet we find that passengers and cargo transferred at Guayaquil from a vessel having plague-stricken rats, and aboard which a case of plague developed on her way south, landed at Panama three days after the transfer. This quarantine was only against plague. So far as I know, no precautions were taken against yellow fever at either this place or Colon and under the conditions which then obtained this was right; both places being generally infected.

On arrival, June 28th, we found the ports of entry under two authorities, Ancon and Cristobal being ports of the Canal Zone and Panama and Colon of the Republic of Panama. A decree of the Governor gave us the authority to administer such quarantine as was possible under the old Colombian laws for the Zone ports. A decree of the President gave full authority for the same for the ports of Panama and Colon. We were able under these authorities to formulate identical regulations for all the ports.

Far more important than the regulations is what we have done and this I will detail. That the plan may be understood, I must premise.

The diseases which then threatened and continue to threaten are yellow fever and small pox on the Caribbean side and on the Pacific side the same diseases and bubonic plague. Yellow fever exists at the Caribbean ports of South America and at Port Limon, Costa Rica, with all of which, from LaGuayra westward, we have considerable passenger traffic. The closest of these ports is about 18 hours from Colon. There is also yellow fever at practically all of the Mexican ports from Tampico south, with which communication will, I understand, shortly be opened.



There is no risk of plague from this side under the present conditions of trade and sanitation, although plague prevails in Rio and has recently extended northwards to other Brazilian ports.

On the Pacific side, yellow fever prevails intermittently at all the ports from Guayaquil to Mazatlan. Guayaquil, especially, has in recent years been virulently infected the year around—far more so than Havana was. This place also reinfects the smaller ports to the north of it whenever sufficient susceptible material accumulates in one of them.

South of Guayaquil, almost every port is infected with plague, and some are badly infected, and the probability is that this disease will persist there for some years.

We had no quarantine station of any kind, no building that could be used for the detention of passengers, no apparatus except sulphur pots, hand pumps, autoclaves, etc., just brought down from New York. We were able then to disinfect vessels at our ports only by great consumption of time and some risk of damage to the cargo. There was no place for the detention of such passengers as might be in the incubative stage of quarantinable diseases except on the vessel after its disinfection here.

Moreover, both Panama and Colon seemed to be free from small pox, plague, or yellow fever and it seemed advisable to take as much precaution against the introduction of these diseases to the Isthmus as is necessary for one of the Gulf ports of the United States. The country was infectable but seemed to be free from these diseases and it was necessary to keep it free. There was however some latent infection in Panama. Colon has remained free.

Now our methods. Officers of the Public Health and Marine Hospital Service are stationed at Callao, Guayaquil, and Panama on the Pacific coast, and at LaGuayra, Bocas, Port Limon, Puerto Cortez and other points on the Caribbean. It is only of the Pacific coast I will speak in detail because the method of operation can be sufficiently understood from the Panama quarantine. Our work begins at Callao. There Dr. Lloyd inspects the passengers aboard the vessel, upon arrival from Chilean ports and inspects all who go aboard at Callao, excluding such as

he believes to have been definitely exposed to the infection of pest, disinfecting all baggage which he believes requires it. He inspects the cargo excluding or disinfecting such articles as he judges dangerous—I will say here that he has had to exclude very little. Finally the ship is fumigated with sulphur for the purpose of killing the rats, although of course this agent is to a certain extent a disinfectant for pest as well as destructive to vermin. On the voyage to Panama, which requires eight to nine days, these vessels dock at no port between Callao and Guayaquil, cargo being taken from lighters in the open bay. They receive no passengers from these ports and certain articles of cargo are also forbidden, viz: used household goods, grain and hides.

At Guayaquil they receive a second disinfection which is done by Guayaquil for her own protection but is supervised and certified to by the Public Health and Marine Hospital Service officer stationed there. The passengers at Guayaquil, in the meantime, have been inspected before going aboard and such as are immune to yellow fever receive certificates to that effect. The vessel lies in an uninfected anchorage, *i. e.* too far from the city to be boarded by infected *stegomyia*. When she arrives in Panama—vessels come direct from Guayaquil—if all are well on board and her certificates show that the above conditions have been complied with, she is admitted in free pratique without any delay. Her Callao passengers are seven to eight days out from that port and having been aboard a clean ship, have passed the length of time necessary since the last possible exposure to pest in Callao. The Guayaquil passengers with immune certificates suffer no restrictions. Those from Guayaquil not immune, being only three days out from that port, are kept under observation two more days at their hotels or boarding houses in Panama, being inspected twice a day by the Quarantine Officer. Passengers from other ports suspected of being infected with yellow fever are held under the same system of observation, both at Panama and Colon.

In every case we assure ourselves that the vessel, either by supervision of her anchorage or fumigation on leaving port, is free from infected mosquitoes and that we can therefore safely

allow the vessel to dock here and count the period of incubation of the nonimmune passengers as commencing when they left the infected port; that being the last possible exposure.

It is proposed to place medical officers, employees of the Public Health and Marine Hospital Service, *aboard* vessels from Callao to Guayaquil and return. With this, the restrictions against vessels can be still further reduced. There need be no bar against passengers being received at intermediate ports between Callao and Guayaquil, as these passengers could be inspected on coming aboard and the necessary precautions would be taken should any one fall sick aboard prior to reaching Guayaquil; and the facts be reported, of which we would have no information otherwise. Also the small amount of grain and hides furnished by this coast could be received on proof that it is merely in transit through the infected port. This can easily be arranged by waybills, etc., from the railroads submitted to the inspectors.

There will be shortly an isolated house with two small hospitals ready as a detention station in which we will be able to hold such passengers from Peruvian ports north of Callao as arrive here prior to the expiration of the period of incubation of pest, counting from the time of leaving said ports. Passengers requiring observation for yellow fever from Guayaquil and other points will be detained in this house also instead of observing them at their hotels, which method of surveillance, although it gives some degree of security, is not satisfactory in Panama.

A detention house, barracks and hospital for the same purpose will shortly be ready in Colon, or rather on Manzanillo Island, in an isolated position.

Plans have been made for a completely equipped quarantine station and a floating disinfecting plant and proposals are now out for the machinery. Work is not being delayed for the completion of this plant, much being accomplished in our own port at present.

It is obvious that much more is now being done by the officers of the Public Health and Marine Hospital Service stationed in infected ports by having vessels avoid dangerous anchorages,

in supervising their taking on passengers and freight, and by their disinfection in these ports than by ourselves here; although the disinfection and detention, which we would be compelled to enforce here were these precautions not taken, is what enables the officer in the infected port to carry out the prescribed measures. Indeed, the steamship agents request the above mentioned supervision and disinfection in order to avoid detention and trouble which they would otherwise encounter.

Our whole system rests upon the work done in the ports of departure and aboard the vessels by these officers. By this means we now conduct a quarantine which gives a high degree of protection with very little disturbance to commerce.

When the medical officers are placed on the vessels as is proposed, and detention houses are in operation, both of which will be accomplished by the time this is read, it will give all the protection required with extremely little interference with commerce.

It would not have been possible to inaugurate an efficient and unobstructive quarantine, with an almost total lack of facilities, except by utilizing men already trained both scientifically and in the administration of quarantine procedures. The good results obtained exemplifies the advantage of "team work" as compared with individual effort.

War is being waged against rats both afloat and ashore. The Pacific Mail Steamship Company's steamers from San Francisco and way ports along the Mexican and Central American coast are being disinfected while at the wharf here to kill such rats as are brought from the above named ports. The three steamship companies at Panama each have tenders, lighters, and hulks used as storeships. These also have been fumigated for rats and traps used on decks and a fairly complete "deratization" of all the floating craft of the harbor has been accomplished.

The Panama Railroad wharf at LaBoca where all vessels discharge and take cargo is also being rendered as free from rats as possible by the use of traps, poison, and otherwise; and this work is being done continuously, our aim being to have the harbor and docks at Panama rat free.

## Contemporary Comment.

### MANOEUVRES OF THE FRENCH MEDICAL CORPS.

ON the 25, 26 and 27 of June 1904 (*La France Militaire*), the manoeuvres of the French medical service were held at Limoges. On the first two days, after a manoeuvre in which both sides were represented, a field hospital was erected on the battlefield, and the wounded were treated with all modern appliances and dressings. At the close of day, the wounded were searched for by litter-bearers carrying acetylene lamps on their caps, and further assisted by three powerful searchlights.

On the 27th of June the problem was as follows: To convoy a hospital train of wounded to a railroad station, from field hospitals; to organize in this station an "overflow hospital;" and to improvise a hospital train to prevent overcrowding of the railroad hospital.

Three field hospitals left Limoges at a fixed time, to take up their assigned positions; they were met by wagon trains filled with pseudo-wounded to be dressed and loaded into ambulances and other conveyances, some of which were very ingenious. These were convoyed to a railroad station, where an "overflow hospital" was organized, together with a small "base hospital" for patients who could not bear transportation. Finally a hospital train was improvised, and the patients placed on board.

These manoeuvres were very instructive to all departments. The medical department learned to organize hospital trains; the Staff were enabled to correct some of their data concerning the time necessary for the operation and transportation of field hospitals; the quartermaster and subsistence departments learned to appreciate the importance of allowing each organization to take the initiative and give its own orders, in view of the multiplicity of details cropping up during the exercises.—S. M. DELOFFRE.

## HOSPITAL SHIPS IN NAVAL WARFARE.

ON the initiative, as would appear, of the French Government, an international conference is to be held at the Hague, at an early date, to draw up regulations with regard to hospital ships in naval warfare. The chief object will be to revise existing international rules so as to leave no doubt with regard to the neutrality of hospital ships. The need of such ships in actual warfare is, of course, everywhere recognized; Japan has two hospital ships, and Russia has recently commissioned the *Orel*. Hospital ships have been commissioned on several occasions in the British Navy for the transport of sick and wounded of the army. At the present time the Royal Navy possesses only one hospital ship, the *Maine*, which, since its employment during the South African War, has been reconstructed, and is now attached to the Mediterranean Squadron. It is, we believe, found extremely useful and convenient, especially in the case of the smaller ships, such as torpedo-boats and destroyers, which have no sick-bay; patients are received on the *Maine*, and treated there, and the ship makes occasional trips to this country when a considerable number of invalids need to be brought home.—*British Medical Journal*.

## THE BOER AMBULANCE TRAIN.

IN the Anglo-Boer War (J. Namar, *Tidskrift i Militar Hälsovård*) the Boers had four permanent ambulance trains to transport the slightly and more severely wounded. Each train could care for fifty wounded. The cars in which the severely wounded were transported were built in four days. The walls were made of extra thin deal. The windows could be pushed sideways; in this way every bed got the same amount of light and air. The beds were placed along the main walls of the car, separated from each other by a corridor through the middle of the car. The beds were made of elastic wire mattresses fixed to strong frames of steel tubes. They could be lifted out and used as litters. The improvised ambulance trains which were composed of freight cars with special apparatus for suspension of the litters proved to be inconvenient because of the lack of springs in the cars.—HANS DAAE.

# Medico-Military Index.

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**BRIGADIER GENERAL JEDEDIAH HYDE BAXTER,  
SURGEON GENERAL, U. S. ARMY.—1890.**



## Editorial Expression.

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### **The Surgeon Generals of the United States Army, XVI. BRIGADIER GENERAL JEDEDIAH HYDE BAXTER SURGEON GENERAL OF THE UNITED STATES ARMY.—1890.**

**E**VERY man has his pet ambition. Early in the life of General Baxter, he developed a desire to become the Surgeon General of the Army, and despite a series of difficulties which would have daunted a less resolute character he pressed forward for a score and a half of years until he achieved his purpose, only to have his victory turned into defeat by the strong hand of the grim reaper.

Jedediah Hyde Baxter was born, March 11, 1837, at Strafford, Vermont, to Porter Baxter and his wife Ellen Janette, née Harris. His primary schooling was received at academies in South Woodstock and St. Johnsbury and his collegiate education was acquired at the University of Vermont, where he received the baccalaureate degree in 1859.

During his college course he had also pursued some of the studies of the medical curriculum, so that, passing at once on his graduation into the Medical Department of the University, he was enabled to earn the doctorate in medicine the following year, —1860. He then extended his professional attainments by service in Bellevue and Blackwell's Island Hospitals in New York City.

War had hardly arisen in the South before he offered his services to the Union, and received a commission as Surgeon of the 12th Massachusetts Volunteers, dating from June 26, 1861. In this capacity, he served with the Army of the Potomac from July 27, 1861 until his appointment as Brigade Surgeon of Vol-

unteers on April 4, 1862, soon after which he was assigned to duty as Surgeon in charge of Campbell General Hospital in Washington, where he remained until he was selected as Chief Medical Officer of the Provost Marshal General's Bureau, a duty which occupied his attention until the completion of the work of the bureau permitted him to devote his entire time to duty as Medical Purveyor.

Upon the reorganization of the Medical Department of the regular service at the end of the Rebellion, he was on July 20, 1867, appointed by President Johnson Assistant Medical Purveyor with the rank of Lieutenant Colonel in the army to fill an original vacancy. His acceptance of this appointment ten days later vacated his volunteer commission and he now set out upon his remarkable career in the regular establishment. In March, 1872, he was promoted to be Chief Medical Purveyor with the rank of Lieutenant-Colonel and on June 23, 1874, he became Chief Medical Purveyor with the rank of Colonel. In 1865, he received the brevet of Lieutenant Colonel of Volunteers for "meritorious and faithful services in the recruitment of the armies of the United States," and that of Colonel of Volunteers for "faithful and meritorious services during the War," while in 1867 he was made Brevet Colonel in the regular establishment for "faithful and meritorious services during the War." His position in the Army Medical Department was unique, since he was the only officer in the Corps, who had entered it except at the bottom and through the established gateway of examination.

An idea of his work in the Provost Marshal General's Bureau may be gained from the two magnificent quarto volumes prepared by him on the "Medical Statistics of the Provost Marshal General's Bureau," and published by the Government in 1875. This work presents the results of the examination of over a million recruits, conscripts, substitutes and enrolled men for military service during the War of the Rebellion, and is much more than a mere collection of statistics, since it contains accounts of the recruiting regulations of other governments, an outline of the history of anthropometry, and many interesting and valuable reports from the medical officers of the Bureau. Major Baxter

not only acquired the most thorough acquaintance with the recruiting of the Union Army and the medical examination of recruits but gained a most astonishing familiarity with the individual examiners, consisting of a medical man from each Congressional district in the thirty northern states and territories. He secured photographs of the members of the Corps and had executed a collective photograph which he so thoroughly impressed upon his mind that he was able to recognize the members at any time thereafter and to call them by name. He secured from time to time a series of reports upon the topography and local causes of disease in each district, which form a most valuable feature of the work.

Colonel Baxter's work as Chief Medical Purveyor was of the highest advantage to the service. From the moment of his induction into the office, the medical supplies became more abundant and of a better quality. The amount of medical literature furnished to each post was increased and the number of medicinal agents was augmented. He believed in encouraging individual work and was quick to respond to the requests of officers desiring special instruments or agents for special researches.

During all this pressure of administrative work he found time for the active practice of his profession. He attended several of the Presidents and their families and his services were extensively utilized by senators, congressmen and Government officials. Time still dragging upon his hands he took up the study of law and after a full course at the Law School of Columbian University, he was graduated with the degree of LL.B. He was the medical attendant at the White House during the early administration of President Garfield, and considerable comment was caused by his failure to be included among the attending surgeons after the President had received his fatal injury. From the standpoint of a score of years later, it would appear to have been simply the outcome of professional competition and consequent animosity. At the time however, the feeling on the subject ran high in Washington.

He early acquired an altogether commendable ambition to become the head of the Army Medical Department. His candi-

dacy was strongly felt at the time of General Barnes' retirement; when General Crane died, his name forged well to the front; when General Murray retired he was one of the most conspicuous candidates for the succession. His candidacy caused much controversy in army medical circles. His opponents held that it would not be fair to pass over the numerous medical officers who were senior to him in length of service although junior to him in rank because of his having been appointed with the rank of Lieutenant Colonel instead of Lieutenant as had every other medical officer, and especial weight was laid upon the fact that he had come into the service without the examination which had been the test of the fitness of every other officer for admission. His friends acknowledged the truth of these facts, but argued that what had been done, had been done, that upwards of thirty years' service had shown Colonel Baxter's exceptional fitness for his work, and that he was now the ranking Colonel of the Department. He had manifested peculiar administrative ability in connection with the supply department and it was believed that he would evince the same executive qualities as Surgeon General. At the time of General Moore's retirement it so happened that these facts coincided with the occupancy of the War Secretariat by a personal friend, the Hon. Redfield Procter, and the incumbency of the Executive by a comrade and long-time patient, President Benjamin Harrison. Colonel Baxter was then promptly on August 16, 1890, appointed Surgeon General.

He came to the office familiar with the most minute details of its management and at once demonstrated his mastery of them. Nothing was too unimportant for his attention. A short time previously, for example, the writer had been refused a leave of absence upon altogether unreasonable grounds, and General Baxter had hardly assumed the chair when he wrote with his own hand a note saying that the leave would now be granted if an application were sent in. It was not long thereafter before the writer was in Washington and a guest at the delightful Baxter home on Connecticut Avenue where he had an opportunity of becoming well acquainted with the new Surgeon General both as a man and as an officer. The General was full of plans for the Medical Depart-

ment to be worked out in the seven years which would have elapsed before his compulsory retirement by reason of age. His schemes were far reaching and comprehensive and involved many details which have never been made public. The fruitage of his work was however destined to be blighted for on December 4, 1890, hardly more than four months from the achievement of his ambition he fell a victim to insidious uremic toxæmia which had long been undermining his system and which brought him down almost without warning.

Thus terminated a career, unique in many respects, the development of which was attributable to the rare personality of the man himself. Persistent and energetic, loyal to his friends and strong against his opponents, attractive and magnetic in character he rarely failed to succeed in an object which he set out to attain. Physically General Baxter was of medium height but strongly built, with clean-cut face and an agreeable manner. He was an excellent raconteur with a peculiar appreciation of the humorous. He was a typical New Englander and a loyal American.

#### ARMY MEDICAL REORGANIZATION.

THE Secretary of War, in his Annual Report recently submitted to Congress, remarks that "it is evident that a Staff Department, which has a personnel insufficient to perform the duties required of it in time of peace, cannot be successfully expanded to meet the increased responsibilities of war. The commissioned personnel of the Medical Department is nearly 200 short of the number required to perform its work at present, and the deficiency has to be made good by the employment of civilian physicians under contract. This is an expensive and unsatisfactory expedient in time of peace, while in time of war it heavily handicaps the efficiency of the Department. A Bill to increase the efficiency of the Medical Department was sent to Congress at its last session with my approval, it having also received the favorable indorsement of my predecessor, Mr. Root. It provides for an increase in the Medical Department from 320 to 420, so as to do away with most of these contract surgeons. It also provides approximately, the same proportion in each grade as is now given to the Medical Department of the Navy, and which the Medical Department of the Army enjoyed prior to the reorganization of February 2, 1901. While this Bill will only slightly increase the cost of the Medical Department it will very greatly increase its efficiency."

## News of the Services.

Surgeon A. R. Alfred, U.S.N., ordered from Navy Yard Puget Sound, Wash. to the Navy Station, Cavite, P. I.

P. A. Surgeon J. F. Anderson, P.H.&M.H.S., delegate to meeting of the American Public Health Association at Havana.

Major A. H. Appel, U.S.A., having been found not disqualified for the military service by a retiring board, ordered to return to Manila, P. I. for assignment to duty.

Lieutenant Colonel Daniel M. Appel, U.S.A., ordered to the Philippines.

Captain B. K. Ashford, U.S.A., granted 30 days leave of absence November 23, 1904.

Captain B. K. Ashford, U.S.A., delegate to the meeting of the American Public Health Association at Havana.

Medical Director J. H. Babin, U.S.N., retired with rank and pay of Rear Admiral.

Major J. M. Banister, U.S.A., relieved from duty in the Philippines, March 21, 1905.

Lieutenant William P. Banta, U.S.A., ordered from Fort Sam Houston to the Philippines.

Lieutenant Noel I. Barron, U.S.A., died October 20, 1904 at Iloilo, P.I.

Dr. L. P. Bell, U.S.A., granted one month's extension of leave.

P. A. Surgeon F. L. Benton, U.S.N., ordered home to await orders from the Naval Station, Cavite, P. I.

Surgeon T. R. Berryhill, U.S.N., ordered from Baltimore to the Oregon.

Medical Inspector D. N. Bercolette, U.S.N., ordered to the Brooklyn Naval Laboratory.

Major W. C. Borden, U.S.A., appointed member of Promotion Board at Washington, November 18, 1904.

Major A. E. Bradley, U.S.A., relieved from duty in the Philippines, April 21, 1905.

Dr. F. D. Branch, U.S.A., ordered from Fort Ethan Allen, Vt. to Fort Wood, N. Y.

Dr. I. W. Brewer, U.S.A., granted one month's leave.

Major A. H. Briggs, N.G. N.Y., was the recipient of a testimonial dinner and a presentation saber from the hospital corps of his regiment at the recent twenty-fifth anniversary of his service with it.

Dr. John D. Brooks, U.S.A., granted one month and fifteen days leave from Fort Meade.

Surgeon C. D. Brownell, U.S.N., ordered from the *Amphitrite* to the Iowa.

Surgeon W. H. Bucher, U.S.N., ordered from Naval Station, Olongapo, P. I., to the Cincinnati.

Lieutenant Carroll D. Buck, U.S.A., ordered from the Louisiana Purchase Exposition to Fort Des Moines, Iowa.

Surgeon D. N. Carpenter, U.S.N., ordered from Naval Hospital, New York, to Naval Hospital, Puget Sound, Wash.

Surgeon H. R. Carter, P.H. & M.H.S., relieved from duty at Baltimore, Md.

Dr. R. P. Cooke, U.S.A., leave granted for twenty days.

Lieutenant Walter Cox, U.S.A., ordered for examination for promotion November 18, 1904.

Captain Walter Cox, U.S.A., advanced to rank of Captain.

Surgeon R. P. Crandall, U.S.N., ordered from the Oregon to the New Orleans.

Captain C. R. Darnall, U.S.A., appointed member of Promotion Board at Washington, November 18, 1904.

Dr. O. F. Davis, U.S.A., returned to duty at Fort De Soto, Fla., November, 13, 1904.

Lieutenant M. A. DeLaney, U.S.A., assigned to the attending surgeon's office in Washington.

A. A. Surgeon H. DeValin, U.S.N., ordered to the Michigan.

A. A. Surgeon H. DeValin, U.S.N., ordered to Naval Proving Ground, Indian Head, Md.

Dr. C. F. Dickenson, U.S.A., granted three months leave with permission to visit the United States.

Surgeon C. Diehl, U.S.N., ordered from the New Orleans to the Baltimore.

Asst. Surg. H. A. Dunn, U.S.N., ordered from Naval Hospital, Newport, R. I. to Naval Hospital, New York, N.Y.

Asst. Surg. J. R. Dykes, U.S.N., ordered from the Rainbow to the Naval Station, Cavite, P. I.

Major Peter R. Egan, U.S.A., relieved from duty in the Philippines, May 19, 1905.

Surgeon S. G. Evans, U.S.N., ordered to the Illinois.

P. A. Surgeon R. H. von Ezdorf, P.H. & M.H.S., ordered from the Louisiana Purchase Exposition to Washington, D.C.

Surgeon A. Farenholt, U.S.N., ordered from the Monterey to the Raleigh.

P. A. Surg. A. M. Fauntleroy, U.S.N., ordered from the Lancaster to the Philadelphia.

Surgeon H. B. Fitts, U.S.N., ordered to the Buffalo.

A. A. Surgeon T. G. Foster, U.S.N., detached from the Michigan and authorized to report for examination as Assistant Surgeon.

Captain L. H. Fuller, U.S.A., ordered to Fort Clark, Texas.

Lieutenant Charles C. Geer, U.S.A., ordered before a retiring board at Washington.

Major R. J. Gibson, U.S.A., relieved from duty in the Philippines, May 12, 1905.

Colonel William C. Gorgas, U.S.A., appointed delegate to the Pan-American Medical Congress.

General Jefferson Davis Griffith, N.G. Mo., is reported as having reached Paris on his trip around the world. The Paris New York Herald has an interview with him in which he comments upon the remarkable patriotism of the Japanese, but observes a considerable prevalence of typhoid fever in addition to many other things "which, although perhaps necessary in a great war, would have caused widespread indignation in America."

Dr. Morris J. Hansen, U.S.A., granted extension of one month's leave.

Medical Inspector G. E. H. Harmon, U.S.N., ordered to the New York Naval Hospital.

A. A. Surgeon B. Y. Harris, P.H.&M.H.S., resignation accepted.

Colonel V. Havard, U.S.A., sails for St. Petersburg, Russia, to represent the Medical Department U.S.A. with the Russian forces.

Dr. Melville A. Hays, U.S.A., granted one month's extension of leave.

Asst. Surg. W. S. Hoen, U.S.N., ordered from the Naval Station, Cavite, P. I. to the Oregon.

P. A. Surgeon R. E. Holcomb, U.S.N., ordered to the Cleveland.

P. A. Surgeon J. H. Iden, U.S.N., ordered from Naval Hospital, Philadelphia to Naval Hospital, Newport, R. I.

Major Francis J. Ives, U.S.A., granted three months leave.

A. A. Surgeon J. M. Jackson, Jr., P.H.&M.H.S., granted one month's leave.

Major R. W. Johnson, U.S.A., granted two months leave.

Major Richard W. Johnson, U.S.A., ordered to Fort Crook, Neb.

Dr. P. S. Kellogg, U.S.A., granted one month's leave.

P. A. Surgeon J. T. Kennedy, U.S.N., ordered from the Louisiana Purchase Exposition to Annapolis, Md.

Major L. A. LaGarde, U.S.A., appointed delegate to the Pan-American Medical Congress.

Asst. Surg. E. M. Lando, U.S.N., ordered to the Naval Hospital, Mare Island, California.

Dr. Robert Lemmon, U.S.A., ordered from Fort McKinley, Me., to Fort Du Pont, Del., for temporary duty.

Captain Charles Lynch, U.S.A., sailed for Tokyo, Japan, to represent the Medical Department U.S.A. with the Japanese forces.

Major W. D. McCaw, U.S.A., appointed member of Promotion Board at Washington, November 18, 1904.

Dr. C. W. McMillan, U.S.A., returned to Fort Myer, Va., from leave November 25, 1904.



Asst. Surg. J. D. Manchester, U.S.N., ordered from the Columbia to the Marblehead.

Lieutenant Charles E. Marrow, U.S.A., ordered for examination for promotion November 18, 1904.

Captain Charles E. Marrow, U.S.A., advanced to the rank of Captain.

Lieutenant Colonel L. M. Maus, U.S.A., leave extended twenty days November 21, 1904.

Lieutenant Colonel L. M. Maus, U.S.A., granted four months sick leave.

Asst. Surg. G. M. Mayers, U.S.N., ordered from the Raleigh, home.

Major E. A. Mearns, U.S.A., granted thirty days sick leave November 17, 1904.

Major E. A. Mearns, U.S.A., sick leave extended one month.

Dr. John N. Merrick, U.S.A., leave granted for two months.

Lieutenant R. F. Metcalfe, U.S.A., ordered to the Philippines.

Asst. Surg. H. T. Nelson, Jr., U.S.N., appointed Assistant Surgeon with rank of Lieutenant, junior grade, from November 14, 1904, and ordered to the Naval Hospital, Washington.

P. A. Surgeon E. G. Parker, U.S.N., ordered from the Buffalo to the Naval Station, Tutuila, Samoa.

Dr. O. W. Pinkston, U.S.A., granted leave for two months.

Major A. S. Polhemus, U.S.A., retired from active service.

Major H. I. Raymond, U.S.A., relieved from duty in the Philippines, March 21, 1905.

Lieutenant W. W. Reno, U.S.A., is the recipient of many compliments upon the gallantry displayed in rescuing the national flag from the roof of the burning Missouri State Building at the World's Fair.

Lieutenant W. W. Reno, U.S.A., ordered from Louisiana Purchase Exposition to Fort Myer.

Dr. H. C. Reitz, U.S.A., leave granted for one month.

Surgeon G. Rothganger, U.S.N., detached from the San Francisco, ordered home with one month's leave.

Major Charles Richard, U.S.A., relieved from duty in the Philippines, May 12, 1905.

Dr. George H. Richardson, who entered the Medical Department of the Army September 9, 1901, and resigned January 1, 1904, is now a captain and assistant surgeon in the Sanitary Corps of the National Guard of California. He has recently been placed in charge of the office of the chief surgeon of the Division, National Guard of California, relieving Colonel A. P. O'Brien, resigned. Dr. Richardson's present address is 590 Sutter Street, San Francisco, California.

P. A. Surgeon W. Seaman, U.S.N., ordered from the Wabash to the Boston Navy Yard.

Colonel Nicholas Senn, I.N.G., will represent the Association of Military Surgeons of the United States at the Pan American Medical Congress.

Lieutenant Robert Smart, U.S.A., granted one month leave.

Captain Alexander N. Stark, U.S.A., granted two months leave.

Asst. Surg. Jacob J. Stepp, U.S.N., ordered from Navy Yard, Boston, Mass. to waiting orders.

Lieutenant V. E. Sweazey, U.S.A., granted three months leave of absence November 17, 1904.

Dr. C. W. Thorp, U.S.A., assigned to duty at Fort Ethan Allen, Vt.

Dr. S. S. Turner, U.S.A., granted four months leave from Fort Columbia, Wash., and died en route to his home.

Surgeon J. F. Urie, U.S.N., sick leave extended three months.

Lieutenant James W. Van Dusen, U.S.A., granted one month's leave.

Lieutenant E. B. Vedder, U.S.A., ordered to the Philippines.

Surgeon L. L. von Wedekind, U.S.N., ordered from the Cincinnati, home.

Asst. Surg. U. R. Webb, U.S.N., ordered from the Naval Station, Cavite, home.

Surgeon C. P. Wertenbaker, P.H. & M.H.S., delegate to meeting of the American Public Health Association at Havana.

Surgeon W. W. Wheeler, U.S.N., granted sick leave for three months.

Act. Asst. Surg. C. K. Winne, U.S.N., ordered to Naval Hospital, Norfolk, Va.

Captain R. S. Woodson, U.S.A., ordered to Hot Springs, Ark., for treatment.

Dr. Stephen Wythe, U.S.A., granted one month's extension of leave.

Asst. Surg. R. M. Young, U.S.N., ordered from the Oregon, home.

### BOOKS RECEIVED.

General Catalogue of Medical Books. 24mo. pp. 109. Philadelphia, P. Blakiston's Son & Co., 1904.

The Physician's Visiting List for 1905. 24mo. Philadelphia, P. Blakiston's Son & Co., 1904.

The Houseboat Book. The Log of a Cruise from Chicago to New Orleans. By William F. Waugh, M.D. 12mo; pp. 210. With numerous full page plates. Chicago. The Clinic Publishing Co., 1904.

Physicians' Pocket Account Book. By J. J. Taylor, M.D. 16mo; pp. 200. Philadelphia, Pa. The Medical Council, 1904.

A Compend of Medical Latin. By W. T. St. Clair, A.M. Second edition. 12mo; pp. 131. Philadelphia. P. Blakiston's Son & Co., 1904.

How to Study Literature. A Guide to the Intensive Study of Literary Masterpieces. By Henry A. Heydrick, A.B. Third edition. 16mo; pp. 151. New York, Hinds & Noble, 1904.

## Original Memoirs.

AUTHORS ALONE ARE RESPONSIBLE FOR THE OPINIONS  
EXPRESSED IN THEIR CONTRIBUTIONS.

### A MEDICAL RESERVE CORPS FOR THE ARMY OF THE UNITED STATES.

By MAJOR AZEL AMES,

LATE BRIGADE SURGEON OF UNITED STATES VOLUNTEERS AND  
FORMERLY ACTING ASSISTANT SURGEON IN THE UNITED  
STATES ARMY.

THE Medical Department of the Army of the United States confronts a crisis. Always too weak in numerical strength and resources for the duties devolving upon it, these have never been increased proportionately to the work it was expected to do,—even in time of peace. The Militia of the several States, when mustered into the United States service in time of war, furnishes only the medical staff requisite to its component regiments and batteries. The grand deficit always existing in the number of surgeons imperatively required by an army in the field, has hitherto been made good from the only available source, viz:—the medical profession in civil life,—chiefly in the capacity of the Acting Assistant Surgeon, under a revokable "contract."

The anomalous and unjust position of the Acting Assistant Surgeon, under the "contract system," whether in peace or war, has long been recognized by all just men, in the Army and out, and has often been portrayed. Protests and efforts at relief have been many but fruitless. A recent decision of the Judge Advocate General of the Army has officially fixed the *status* of the Acting Assistant Surgeon as that of a "civilian" only, and is technically logical, though sadly humiliating and unjust to the man, and dis-

graceful to the country he has so honorably served. As such "civilian" he is, of course, without any possible shadow of authority, and hence can no longer be of use to the Army, respect himself, or be respected, while holding a "contract."

During the civil war there were 5,532 Acting Assistant Surgeons; during the Spanish War over a thousand; some hundreds have served in the Philippines; and there were recently 230 still in the service. In the five years after the Spanish War there were 1,604 appointments and 1,512 discharges of "contract" surgeons.

That this body of men must now drop out; that no others of reputable standing and self-respect, could, if desired, be recruited from civil life under present humiliating conditions, to take their places, and that certain radical changes to secure efficient substitutes for the "contract" surgeons, are *imperative*—(especially with an eye to very possible future wars), are self-evident propositions.

The very climax of the wrong done the "contract" civil surgeon of the Army, compels the recognition and commissioned rank for his successor, so long denied him, but which he ought always to have had

The Surgeon General of the Army has recently officially declared,—in sharp contrast to the attitude of his office but a few years since, that,—“It is the common experience of all military nations that physicians serving with troops cannot properly perform their administrative duties or fittingly maintain the dignity of their position without military rank.”

Major Borden, of the Army, recently speaking as the representative of the Surgeon General, at Atlantic City, declared that:—“The contract” surgeon if worthy to do the work of a commissioned Army Medical Officer, is worthy to have a commission.”

Verily,—“The mills of the Gods grind slowly, *but they grind!*”

But, it is conceded by all, that, however excellent the *personnel* and professional skill of the surgeons who take the field with troops, fresh from civil practice, but without due training in the practical duties and requirements of military medical officers, they are seriously hampered and limited by this very lack of special preparation.

All thorough men—especially those responsible for results—have long realized the necessity of a uniform higher and better training, both scientific and practical, for all the factors of the Medical Corps of the United States Army,—whether upon its Peace or its War footing.

The chief means to this end, as recognized in the Armies of other advanced nations—an Army Medical School—as exemplified in Great Britain, Germany, etc.,—has, with us, hitherto lacked, not only the general and personal interest and moral support of the great medical profession of the Nation and of Congress, but also a proper *clientele* or student-body, that would warrant its maintainance on such a plane as would be duly effective, and on such a scale as would comport with our National and professional standing, dignity and pride.

The small Medical Corps of the Regular Army,—with its infrequent changes of *personnel*—would, of course, require for itself, but a small establishment of this kind, and its own special instruction therein would soon be accomplished. The medical officers of the Militia of the United States (The National Guard) have never had, until very recently, such relation to the Regular Army in time of peace, as to be eligible to the advantages of its Medical School, while the Acting Assistant, or “contract,” Surgeon has held only a paradoxical, temporary, busy, and (usually) brief, connection with the service. The Medical Officers of the Militia of all States that have accepted the Army Reorganization Act are now eligible to such U.S. Army Medical School as may exist, but will not largely avail themselves of this advantage at the attendant inconvenience and cost.

Hence nothing is more certain than that an Army Medical School is, today, a great need of the Nation and of the medical profession both of the Army and of civil life; that such a school cannot be and do what it should, without an adequate support, moral and material, from the Country and Congress,—and that it must have a *proper student body*. It is also clear that the Medical Staff of the National Guard *needs*, and the great volunteer contingent from civil practice, (always inevitably called upon in time of war), *should surely have*, the sound, uniform training which only such a School can properly give.

Hitherto, any effort to properly train and fit the great volunteer body of the to-be medical staff of the Army, for actual military service (except medical officers of the Militia) has been obviously, utterly impossible, simply because it could not be known in advance, who, in civil practice, in any community, would respond to a call of the Government for medical service with the forces, in the event of war.

Recent Congressional action reorganizing the Army, has put it closely upon the more effective basis of the best armies of Europe, with their first and second lines of "Reserves." The United States Army needs however, a far better organization of its Medical Department than now exists, upon the "three line" basis, including a "Reserve."

Of these lines the medical staff of the Regular Army would, of course, form the *first*: that of the Militia (National Guard) the *second*; and a new body,—(to replace the old unknowable and unorganized volunteer "contract" contingent.)—A Medical Reserve Corps of the United States Army,—should be the *third*. The details of this outline will be further considered hereinafter.

Under substantially this organization, given an Army Medical Reserve Corps, an Army Medical School of the highest character and scope—worthy alike of the Nation and the profession of medicine,—duly empowered, and the systematic, competent, *uniform* training of the entire Medical Corps of the National forces in each of its three "lines," could go steadily forward, to the inestimable benefit of Humanity, the Nation, the Army, and the Medical Profession at large.

It is evident then, that the *prime* factor of the foregoing outline is the suggested Medical Reserve Corps, an organized, responsible body of picked men in civil practice, duly under commission as officers of the "Reserve" list of the Army, (but not under pay, except when transferred to the "active" list). A most excellent substitute, as all must agree, for the patriotic and devoted, but unknowable and untrained host of civil-surgeons under "contracts" or "drum-head" commissions, upon whom, in emergency, the Nation must otherwise rely. Such a Corps, distributed with substantial evenness, throughout the States;

tractable and teachable because known, located, organized and amenable, would constitute the main student-body of the Army Medical School, a body subject to change but with its numbers always full, and would bring the medical men of the Army, of the Militia and of civil life into closer, yet broader, community of interest and mutually helpful work.

The *second*,—and almost equally important—chief factor of the suggested outline, is clearly a competent Army Medical School, which, properly a part of the Medical Department of the Regular Army, would fittingly determine and disseminate the especial uniform instruction and training, requisite to similarly fit all members of the Medical Corps, of all grades and in all its lines,—Regular, Militia, or Reserve—for the duties they are likely, or at least liable, to be called to discharge.

It is therefore evident that the prime necessity to establish these factors is the requisite action of Congress to properly constitute and empower such a Medical Reserve Corps and such an adequate Army Medical School, and to put these two into their proper relations to each other to the Medical Department of the Army, and to the profession at large.

The *third* chief factor of the outline sketched, is the *method* whereby the other two chief factors are to be brought into effective relation and co-operation. It is obviously impossible for the young and busy civil practitioner to leave his practice, or to be at large expense, to attend an Army Medical School at Washington, Fort Leavenworth, or elsewhere. It *is*, however, entirely practicable to employ the "correspondence method" of instruction and examination (utilized with such eminent success by the University of Chicago, the Engineering School at Scranton, and certain other commercial and scientific Institutions), between the school and the student-officers of the Medical Reserve Corps, for such preliminary examinations and periods, courses, special instruction, and subsequent examinations, as shall be, from time to time, determined by the Surgeon General of the Army. The "correspondence system" and its results have already received the high approval of several Departments of the Government. It is moreover, suggested, that to the ten per cent of the Corps

receiving in any year of study, the highest marks upon their written examinations, "Traveling Scholarships" shall be given for one month, (as officers of the "active list" of the Army, under pay and with travel-pay and emoluments), under "orders," to enable them to visit the Army Medical School at Washington, Fort Leavenworth, or such other Army Headquarters, or Posts, as may be most conveniently designated, for the purposes of personal instruction, observation, etc. By these means the entire Reserve Corps will be under the careful, exact and uniform instruction, examination and stimulus of the Army Medical School and in constant relation to it, to the Surgeon General's Office and the War Department, as to forms, papers, discipline, ambulance work, hygiene, and other military duties, thereby acquiring full and competent training for actual medical service with troops in the field.

Briefly summarized:—it is proposed to create a "Reserve Corps," of the Medical Department of the Army and under its control, to consist of such sufficient number of civil practitioners as Congress shall determine (from 2,000 to 4,000), graduates of reputable medical colleges, from twenty-one to fifty years of age, (to be appointed equitably from the Congressional Districts) to be commissioned by the President of the United States to serve for five years (but eligible for reappointment), and duly mustered into the service as Assistant Surgeons of the "Medical Reserve Corps" of the United States Army, with the rank (and with the pay and emoluments when ordered upon "active" duty) of a first Lieutenant, mounted, but to serve without pay or emolument at all other times,—except such provision as shall be made for free instruction and examination in the duties of a military surgeon, by the Army Medical School, through the "Correspondence system," or other means.

To secure the highest type of young and middle-aged civil practitioners for this Corps, free from undue political influence or favoritism, it is proposed that every practitioner so commissioned shall have first been selected and approved (as to character and physical and mental fitness), by a Board composed of the Surgeon General of the Army; the Surgeon General, (or



highest medical officer) of the candidates' State, and the member of Congress in whose district he resides, or their representatives. In every case the applicant to be endorsed as to his moral and professional qualities by some reputable medical society of his County or State. In time of peace, such Assistant Surgeon of the Reserve Corps to be utilized to the benefit of the Government at forts, arsenals, posts, etc., whenever to the mutual advantage of the Government and Army and himself, and in emergency, or war, to take service on the "active" list, temporarily, according to need, with the right to resign if continued service would be prejudicial or injurious to his civil interests, or to waive service in favor of others of the Corps, with the approval of the Surgeon General.

Such an officer would be, not only all that the Acting Assistant Surgeon was, but far more; because, *first*;—he *would be an officer, de jure* as well as *de facto*; *second*;—he would be especially trained for the duties of a military surgeon by the Army Medical School, in uniformity with the medical officers of the Regular Army and of the militia; *third*;—he would be "the pick" of the profession in civil life, morally, physically and mentally, with just as much, and no more, liberty as to active service, as the Acting Assistant Surgeon had, to go or stay.

The general outline for a Medical Reserve Corps of the Army, substantially as just sketched, was submitted by the writer in October last, to Major Borden of the Army, who greatly improved it by suggesting that the members of such Corps be given, *ab initio*, the commission of Assistant Surgeon with the rank of first Lieutenant, instead of the grade of Medical Cadet on entry, and the commission of Assistant Surgeon when called to active service, as originally proposed by the writer. Naturally, after years of effort made by him and others, to secure commissioned rank for the civil surgeon in the Army service, this suggestion was especially gratifying, although the conditions created by the recent decision of the Judge Advocate General *had rendered absolutely necessary* the commissioning henceforward, of all auxiliary surgeons of the Army from civil life.

The writer's original outline, which comprised as its three equally essential factors, a Medical Reserve Corps, picked from the civil practitioners of the whole country; an Army Medical School, of scope and authority to instruct the members of the Corps in their distinctive duties as medical officers; and the so-called "Correspondence method" of instruction and examination, as the means of communication between these two, was duly submitted to the Surgeon General of the Army and after examination received his cordial general approval. Indeed, it was freely admitted that the question of how to obtain substitutes for the emasculated "contract" surgeon had become a serious and anxious one for the Medical Department of the Army and the plan proposed was hailed with much cordiality, as affording an apparently happy and practicable solution of the grave problem.

That it *will* afford such solution—given due and friendly legislation, organization, and conduct—there can be little doubt. Its inherent difficulties are chiefly, seemingly, only those of detail, which a high and broad purpose, experience, and later legislation (as indicated by that experience) will readily remedy.

But graver difficulties and changes which have developed and attached themselves to the proposed plan, in its passage through the Surgeon General's Office and the War Department, to and through the Military Committees of Congress, are of most serious importance, and challenge the most careful consideration of every man whose fealty to the Country, the Army and its Medical Staff, and to the Medical Profession at large, is what it ought to be.

It has, as will be generally recognized, always been the complaint of the War Department, and especially of the Surgeon General's Office—and not without justice—that the chief defect in the volunteer contingent of medical men who came fresh from civil practice to the Army—whether with or without commissions—was its lack of knowledge and skill in its distinctively military duties and notably in military hygiene.

Again and again has this lack on the part of volunteer surgeons, of all grades, been urged by administrative officers of the Army, as a reason for the increase of the Regular Staff,—though

not always justly, or in good taste, in view of the fact that some of the finest achievements along these very lines have been accomplished by these volunteers and despised "contracts." It is well to bear in mind that again and again, the fact has been officially deplored by the Surgeon General's Office, that the volunteer and Acting Assistant Surgeon had not the requisite preliminary training for immediate efficiency in service with troops, and that, worst of all, such preliminary training was *impossible*, simply because it could not be known in advance of a call to take the field, who of the medical profession in civil practice, would respond. It will be said that either this was a sound and honest criticism, or it was not. To the writer's mind it was *both*. It is obvious that the defects of the "green," though professionally able, surgeon, from lack of military experience, even if not as great as sometimes pictured, were and are considerable,—and the criticism in so far was just. It is equally true that the emphasis laid upon these defects, and their exaggeration, were not infrequently made to do duty as special pleading in behalf of the dignity, welfare, importance, *and especially the increase*, of the Regular Medical Staff—in so far they were disingenuous.

The facts remain,—plain, pertinent and insistent:—first; that in the event of war, a Republic—wedded to the principle of no large standing armies—must rely always upon the skill, patriotism, and devotion of the great medical profession in civil practice for the auxiliary surgeons of its Army Staff, and second, that—for best results—this great volunteer contingent of civil surgeons, should, if possible, have preliminary training for the field duties to which they may be called.

The plan—the *system*—I have outlined, makes the training, so seemingly impossible, in the past,—*both possible and practicable*.

Said Major Borden, at the Boston meeting of this Association in 1903—"In view of these facts it becomes a self-evident proposition, that, unless a Doctor of Medicine has supplemented his training for the profession of medicine and surgery, by studying the duties of a medical officer, he will be unable to properly and efficiently perform these duties when he first enters the ser-

*vice, and if he does not receive adequate training before or at the time of his entrance into the service, it will be only a costly experience, often to the discredit of himself and the service, and of incalculable injury to the Army, that such training is obtained."* Nothing could be more definite, positive or truthful than this.

We may then, from this and other recent utterances of like tenor, bearing official or semi-official stamp, rightfully hold the facts thus stated to be sound and basic, as affirmed by highest authority. We have a like right to infer that they will be binding upon the judgments, consciences and acts of those who proclaim them as fundamental.

It is hence with the keenest regret that the writer notes and earnestly protests, the grave and radical changes which have been engrafted upon the original outline proposed, to its great undoing, as they find expression in the "Bill to increase the efficiency of the Medical Department, United States Army," drafted by the Surgeon General's Office, and with the approval of Secretaries Root and Taft, laid before Congress as Senate Bill 4,838 and House Bill 13,998.

The regret is keen because this Bill, though doubtless unfailingly just and liberal to the regular army medical staff, its needs and desires, and carrying the approval of the Secretaries—according to the lights lent them by those interested—sadly fails in the presence of the first great opportunity, to do that plain and palpable justice to the needs and rights of the Country, the Army and the Medical Profession, which the Surgeon General and his spokesmen have, as quoted, only so recently proclaimed, and to which all just men had hoped the Medical Department of the Army had at last awakened.

The regret is keen because the Bill tells, all too plainly, of broken faith, lowered standards, the desertion of high and broad principles and the subordination of high and broad ideas and great opportunities, to less worthy, narrow and personal considerations, and breathes anew the old typical, dominant spirit of Bureaucratic, dogmatic self-seeking and self-assertion.

Alert and careful as the Bill is, in every line, for the far less-important interests of increase in number, rank, pay, etc., of the

officers of the regular medical staff, the *only effort* it makes at meeting the great, imperative, paramount needs of the Nation, and the Army, for a competent and fittingly trained auxiliary body of civil surgeons, and of justice to them and the great medical profession, finds sole expression in provision for an *unlimited* Medical Reserve Corps, *to be, as to its personnel, etc. wholly the creation and creature of the Secretary of War—in reality, of the Surgeon General, alone.*

A body of such alarming possibilities as to size, pervasiveness, opportunity and activity in the political or personal interests of its chief, or of those for whom he might invoke its allegiance and labors, vividly recalls the dread of the great "Father of his Country" of the cabal-breeding tendencies of standing armies. Such a power as that proposed, lodged in the hands of a Bureau Chief of the War Department, is greater than that vested in the President of the United States, and *might* be used with tremendous effect, for ends wholly foreign to its true purpose.

Sec. 7, of the pending Bill, which contains the gravamen of its constructive features, reads as follows:

"That for the purpose of securing a reserve corps of medical officers, available for military service the President of the United States is authorized to issue commissions as first Lieutenants therein to such graduates of reputable schools of medicine, citizens of the United States, as shall from time to time, upon examination to be prescribed by the Secretary of War, be found physically, mentally and morally qualified to hold such commissions, the persons so commissioned to constitute and be known as the medical reserve corps. The commissions so given shall confer upon the holders all the authority, rights and privileges of commissioned officers of the like grade in the medical corps of the United States Army, except promotion, but only when called into active duty as hereinafter provided and during the period of such active duty. Officers of the medical reserve corps shall have rank in said corps according to date of their commissions therein and when employed on active duty as hereinafter provided shall rank next below all other officers of like grade in the

United States Army: Provided, That contract surgeons now in the military service, who receive the favorable recommendation of the surgeon general of the Army, shall be eligible for appointment in said reserve corps without further examination."

A careful analysis of the Bill, and its seemingly rational and innocent phraseology, will establish beyond question, that the intent is—and it is conceded—to permit the Surgeon General on such examination as the Secretary of War—of course by and through the Surgeon General—shall prescribe, to recommend to the President for commissions, *all* such graduates in medicine *as he shall see fit*, their number, fitness, location, etc., being practically, *wholly*, under his individual control.

To this loose, indeterminate, *unlimited* extraordinary feature one is compelled, alike from patriotic and prudential motives, to strongly dissent and protest.

A proposition for an unlimited body of first Lieutenants of the Army, under Presidential commissions, to be created, practically, at the *dictum* of one man, will naturally alarm Congress, the press and the people, while it cheapens the value and desirability of appointments therein, to the most competent and desirable young men. The control of these *unlimited* opportunities by a single official, without any actual legal check upon him, such as the scrutiny of the Senate upon Presidential appointments,—is repugnant to safe and established policy, while it affords wide opportunity and power for the exercise of personal preferences or animosity, for or against sections or individuals, to the detriment of the whole and is repellent to every idea of right. Again, it is plain that in a matter affecting the whole country and the entire profession of medicine, there should be some better and surer provision for the just and equable recognition of all parts of the country and all professional schools and associations that can present reputable men.

The avowed desire and purpose of the Surgeon General to take *all* such men as desire appointment in the Reserve Corps, as are satisfactory to *him* alone, without associate examination or approval by, or any recognition in such choice of the great professional body in civil life, from whom they must come, or of

any other local professional or political sponsorship,—is such painful reassertion of the old-time self-sufficiency and autocracy of the War Office and its Medical Department, in matters directly and intimately concerning those ignored, as has been so regrettable, offensive and injurious in the past, and it had been hoped, was, under a new *régime*, to disappear.

The recognition of the several State military medical chiefs and of the members of Congress as to appointments in their respective districts,—if only to enlist the active interest of the latter—would seem to be alike just, courteous, politic and wise.

That the latter would lend any undesirable political bias to such appointments is negatived by the facts related to present appointments to West Point and Annapolis, nominally made by members of Congress, but actually made, in nearly all cases, upon competitive examinations arranged by them, without personal interference and without political, personal or race consideration.

In view of the many recent earnest declarations of the Surgeon General, and those speaking for him, as to the grave military deficiencies of even the most capable medical men in civil life, and the positive assertions quoted herein, of the absolute necessity of preliminary special training for this civil contingent, if we are to prevent the grave results predicted by Major Borden, one is "sore amazed" to find not only that the Bill in question contains no provision for *any* instruction for the proposed Corps, *but that none is contemplated, or even desired*,—as we shall see.

Hence one is quite in sympathy with the very pertinent and pregnant question of Chairman Hull of the House Committee on Military Affairs, to the Surgeon General in reference to this Bill:

"What advantages does it add to simply issue a commission to the graduate of a medical school, and wherein would he be superior in case need for his services should arise in time of war, to the civilian physician who was not so commissioned? Where does he get any of this special education?" The replies of the Surgeon General were unsatisfactory and the Chairman continued:—

"They would be superior if you put them in post-graduate schools and trained them specially, but you do not take them

here and give them a post-graduate course, and give them instructions in camps and discipline, and all that."

To every thinking man the objections of Mr. Hull are pertinent and sound. They were no less so, but a few months ago, to the Surgeon General and his associates. Why this change? Why this remarkable evasiveness with the Military Committee, even when *prompted* to make provision for the education of the proposed Corps, and what is the *animus* of the following remarkable statement, recently received by the writer from Major Borden, who undoubtedly speaks the mind of his superior in the matter, if not directly authorized thereto? He says, under date of Sept. 30th :

"In regard to the use of the Army Medical School for the instruction of the Medical Reserve Corps, *it has never been the intention of the Surgeon General, nor anyone in his office, to use the school for such a purpose.\** The law now provides that the school should be used for the instruction of Regular Medical Officers and such organized Militia as may be sent to the school by order of the Secretary of War. It is the intent of this Bill [The existing law presumably], to give these officers and these officers *only*.\* a technical military-medical education."

It seems pertinent to remark that the law can, and *should* be amplified, if necessary, to extend the benefits of the school to the *largest division* of the Army Medical Staff—the civil surgeon contingent—especially if commissioned officers of the Reserve Corps.

Major Borden resumes;—"The Medical Reserve Corps is to consist of qualified professional men, who would be qualified to do *professional work* when the service demanded. It seems to me that to attempt to educate the Medical Reserve Corps into Medical *Officers* and to give them a knowledge of all the technical duties which Medical Officers are called upon to perform, would be too colossal a task, and would involve too much expenditure of time and money. Neither do I think that Congress would look favorably upon such a scheme, because as they are well qualified *professionally*, they would be able to look after

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\*Italics the writer's.



the sick and wounded under the general direction of the officers of the regular and volunteer establishments who hold executive positions.

"I must say that the more I think of it the less I am impressed with the desirability of instructing or educating the Reserve Corps after it is created, by sending them to school or by correspondence methods. So long as they are qualified professionally, as shown by their having passed the requirements, I do not think Congress will be inclined to spend money in educating them in technically military-medical matters."

One needs to take a long breath after this most extraordinary statement, which lays bare the real desires, purposes and intents of the "small oligarchy"—as one journal calls it—which purposes to thus establish itself in the sole direction and control of the administrative affairs of the Medical Corps of the Army. It is needless to say that against such a plan every self-respecting physician, lover of his country and his profession, will steadfastly and earnestly array himself, while life and reason last. To deliberately create a body of inferiors to perform subordinate labors, and to designedly keep that body ignorant of other duties that a select few may retain command, savors intolerably of stigma and servitude.

One hardly knows where to begin the dissection of this pronunciamento,—and but for the well-known and insatiable hunger of the Bureau Chiefs of the War Department for more power, one would be at a loss to understand the change of heart which has come over men who, but a few months ago, were insistent, for the better military education of the civil medical contingent of the Army.

Content, apparently, with the hope of the grand accession to the dignity of his position,—in the available force to be placed at his command by the creation (practically at his pleasure, as to numbers, *personnel*, location, etc.) of the great *unlimited* commissioned Medical Reserve Corps he proposes,—the Surgeon General has seemingly quite forgotten and has put under his feet as of no consequence, his late earnest protest as to the abso-

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\*Italics the writer's.

lute need of rank and preliminary training for civil practitioners, who enter Army life.

It is but fair to ask,—*Have the conditions changed?* Or, is this plain purpose to kindly permit the medical men of the Country, however able or distinguished, to come to the help of the Medical Department of the Army purely as attendants upon the sick and wounded, under the orders of some unfledged Assistant Surgeon of Volunteers, *going to change* all the hard, obstinate and unyielding facts and features of Army life, and produce an Elysium of Service?

Let us examine in detail, this statement of Major Borden, in which, though unofficial, it is fair to assume he voices the views of his Chief, the Surgeon General, whose peculiar attitude before the House Committee on Military Affairs, it also, at last, makes clear.

Because the civil practitioner usually lacks certain knowledge desirable in a military surgeon—although it is proposed to make him a medical officer of the U.S. Army, "*with all the authority, rights and privileges of commissioned officers*"\* of that Army, (I quote the exact language of the Bill)—it is proposed to *keep* him ignorant of what it is conceded *he ought* to know, and *it is hence considered undesirable to educate him!*

Instead of teaching him what he *ought to know* as a medical officer of the Army, to properly fill the position and most efficiently discharge his duties, it is proposed to *keep* him ignorant, and *because he is so*, to deprive him of the "authority, rights, and privileges" of a medical officer of his rank (which the Bill expressly says shall be his) and to utilize only certain abilities he is presumed to possess. Is the Bill wrong in its language as quoted, or is the proposal to thus degrade and humiliate the officer after he is made such, *wrong?* Is the Officer of the Reserve Corps to be made to repeat the humiliating experiences of the Acting Assistant Surgeon? The reason for all this is not far to find.

It is an open *declaration*, that it is the desire and purpose to arrogate to the Medical Staff of the Regular Army, and to certain

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\*Italics the writer's

of their associates of the volunteers, the entire direction and control of the executive and administrative functions of the Medical Department of the Army in the field, and to kindly assign to the Assistant Surgeons of the proposed Reserve Corps—whom it is hence not worth while to instruct in the duties of military medical officers,—*only the professional duties incident to the care of the sick and wounded, and to limit them to a service which, in the intent and manner of its assignment, would be grossly invidious, and practically would be servitude, if it were practicable.*

We are informed too, that the Army Medical School, though created by the People, paid for by the People, and designed for the instruction of the Medical Officers of the Army of the People, will *not* be utilized for the education and benefit of any save a few chosen servants of the People who hereby assume to say what their masters, the People, shall do with their own.

But it will be of interest to know what the Medical Profession will have to say to this contumelious cavalier disposition and relegation of their services, by the handful of their number to whom, for the time being, administrative authority in the Medical Department of the Army has been entrusted.

Does anyone doubt what sort of response the call of the Surgeon General upon the Reserve Corps, or the medical profession, in time of need, will receive hereafter, when men of large and lucrative practices and professional repute,—the men the soldier wants,—are asked to abandon their interests and homes to serve in the field,—*to serve without even the dignity and responsibility they enjoyed as Acting Assistant Surgeons under "contract," nor as the equals of sometimes younger and less qualified militia officers of the same rank, from their own States?*

One need not be a prophet to foresee that the better and most desirable men in civil practice will promptly decline service under conditions so frictional, invidious and humiliating, and that even the possibility of a Reserve Corps is seriously jeopardized thereby.

While it may be true that in certain countries, like Russia, maintaining large standing armies *and having, in time of peace, no organized Medical Corps*, a dual system of government satis-

factorily exists in the great military hospitals in time of war,—the one administrative, the other professional,—such an arrangement would be utterly impracticable with the large volunteer forces of Republics, and is even of doubtful advantage abroad.

No one of large experience in actual field or hospital service with the Armies of the United States would dream of a scheme at once so wholly impossible and unjust, so hopeless of uniform application and so little short of insulting to the intelligence of those upon whose favor the auxiliary medical service of the Army *must* always depend.

The medical profession and the people of the United States and their representatives the civil practitioner in temporary auxiliary service are not yet ready for the creation of a medical "Cobourg" in the camps and hospitals of their Army—whatever may exist elsewhere.

It would be interesting too, to know what the Army Medical School is for,—after it has "ground through" its little grist of the younger officers of the regular staff, and the very few score medical officers of the National Guard, who may be able and willing to seek its instruction. It cannot "grind them through again," and like Othello its "occupation" will be "gone" save as it may afford coveted place and honors for a few favored officers who are assigned to its scientific work. Such an establishment must speedily die of "dry-rot" if it escapes the irreverent and destructive hand of the practical law-maker—having no sufficient student-body, and hence no warrant for its existence—certainly none for the costly and narrow one proposed.

Congress is not unaware of the comparative values and importance to the Country, to the Army and to itself, of the great body of the medical profession in civil life and of the handful of men who constitute the medical staff of the Army, a staff which would be utterly paralyzed in time of war without the succor afforded by this great body of the civil profession. It has never hesitated to provide the necessary means to improve and make effective the care of its soldiers, and there is no reason to doubt, as Major Borden does, its readiness to authorize and liberally support *whatever* may be *needful* to make *most honorable, effi-*

*cient and competent, the service of a proper Medical Reserve Corps for the Army.*

With such a Reserve Corps as is proposed (say of from 2,000 to 4,000 men) under pay only when upon active duty, the cost of maintainance need not be great, while careful study of the subject proves beyond doubt, that its especial instruction in its distinctively military requirements by the "correspondence method" would neither be "a colossal task," or "involve any great expenditure of time and money," as argued by Major Borden. Its curriculum would be a limited one, and the Army Medical School might, and should, be readily adapted to the work of instruction and so justify its existence, and enlargement.

By this "method" which lack of time forbids to more fully consider here, competent instruction and examination can be rapidly, effectively and inexpensively given, all over the Country, without publicity, or the necessity of disturbing the regular work of the busy practitioner. By these means the officers of the Medical Reserve Corps may be speedily made as proficient as lack of actual field work will permit, *in all the multiple duties of which the Army Surgeon MUST AND WILL,—under any scheme of organization,—be inevitably, and wisely called upon to perform, in the future, as in the past. No such sub-division of duties as that proposed is desirable, practicable or possible!*

In conclusion, the writer firmly believes that the *People* of the United States; *the Press*; *the great Medical Profession of the Country*, and *the Congress*, will emphatically disapprove of:—

An *Unlimited* Medical Reserve Corps for the Army, with its grave possibilities for evil:

Its practical creation and control by a single official of the Army:

The exclusion of all associate authority and sponsorship—local or general, professional or official—in the selection of its members.

The exclusion of all provision for its equable and equitable selection from all parts of the Country:

The maintainance and exclusive use of the Army Medical School for a favored few only:

The rejection of all means and efforts to instruct the proposed Medical Reserve Corps in its Army duties, with the purpose of keeping it in an inferior position—and

The proposal to arrogate to the regular and volunteer medical staff, *exclusively*, the exercise of all administrative and executive duties and functions of the Medical Department of the Army, assigning to the Assistant Surgeons of the Reserve Corps, professional duties only.

A careful study of any and all of these propositions, cannot, the writer believes, fail to result in their condemnation as unpatriotic, dangerous, unjust, unwise, impracticable and arrogant.

Hence it is believed that the sound, just, practical, sober sense of every friend of good government, on broad lines; of efficiency in the service; of due honor and respect for the medical profession, and of justice, and decent regard for others in the administration of public affairs, will impel him to lend his aid for the defeat of propositions so indefensible, and in support of the better methods so readily attainable and herein suggested.

The establishment of a *Medical Reserve Corps for the Army of the United States*, substantially upon the lines suggested in the early part of this paper, with the *rationale* therefor,—*will, it is believed, meet effectively, the real and pressing needs of the Country and the Army* for such a Medical Auxiliary body as is requisite and will commend itself to every fair-minded student of the subject.

#### DISCUSSION.

LIEUTENANT COLONEL JOHN VAN R. HOFF, U.S.A.—I arise to discuss this paper hesitatingly, not as one with authority, nor one with much beyond a general knowledge of the matter.

Major Ames' essay, beneath its elegance of diction, for which its author is so well known, seems to be a more or less direct attack upon the Surgeon General of the Army, and an indirect one on the Medical Corps, of which I have the honor to be a member, and I can not permit its reference to the publication committee, without remark.

MAJOR AMES—I hope Colonel Hoff will pardon me when I say it is wholly on impersonal reasons.

LIEUTENANT COLONEL HOFF—I have no right to speak for the Surgeon General, his representative here can do that, but I believe it my duty to

speaking in defense of my own corps, which is accused of an attempt to aggrandize itself at the expense of the profession at large.

I am quite sure such is neither the intention of the bill for the reorganization of the Medical Department of the Army, now before Congress, nor the desire of the Medical Corps.

What Major Ames says, and well says regarding the status of contract surgeons is true and, as I understand it, one of the objects of the bill is to change this status. In fact the correspondence with Major Borden, of which I know nothing except what was presented here today, indicates that the bill, if it becomes law, will do exactly what Major Ames claims should be done; viz: give the present contract surgeon a definite and well defined official position, in a word, a commission.

I believe it has been the desire and effort of every medical officer of the regular establishment to do this very thing. Major Ames may recall that while he and I were serving in Porto Rico I wrote a letter to the Surgeon General recommending that all contract surgeons be commissioned. He may not know that the very beginning of the Spanish-American War I addressed the Surgeon General expressing the hope that during that war there would not be a "Contract" Surgeon in the Army; if we needed medical officers and we certainly would, that they should all be commissioned, exactly as would be the Quartermasters, Commissaries, Judge Advocates, Adjutants and Inspectors General, *id est* genus omnes who were appointed from civil life by the score and hundred.

If we can go into the highways and byways and hire medical officers at \$150 per month, why then not hire Quartermasters or Commissaries, or Adjutants General, or Inspectors or Judge Advocates as well, for a commission is no more necessary in the one case than the other, and the standard of military experience was certainly no higher for the commission than the contract.

Unfortunately we were content to continue the method handed down from previous generations and employ civil physicians under the unnecessary, unsatisfactory, and to them disagreeable, contract. Let us not have "contract" surgeons, the name is hateful, let us insist that every physician who serves the army as an officer, be given an officer's standing, which can only be accomplished by commissioning him.

Regarding the question of a reserve corps, I am unable to speak authoritatively, but I believe such a reserve to be very desirable. Physicians with knowledge of medico-military methods may be of untold value to the country; such should not be lost sight of, but on the contrary should be encouraged to keep up a quasi official connection with the service, which connection should be made desirable by privilege and possible emolument.

The necessity for such a reserve is recognized in all armies except our own, and with them there is never any dearth of trained medical officers, except in the British army, since all there must learn the soldier's art. In

Great Britain, whose army ours most closely resembles, there is a reserve made up of retired officers of the permanent establishment together with surgeon of the auxiliary forces regarding which some of our friends might enlighten us.

We too certainly need a reserve medical corps. No thinking man can believe otherwise, neither can he question that the members of such a corps should have special instruction in the work of the military medical officer. [Applause.]

The method by which such instruction can best be imparted is a question to be determined only by more careful consideration of the subject than has probably yet been given it. I know of no reason why we should not put into effect the same scheme that now exists in Great Britain, where in the various medical schools the students receive instruction as well in the duties of the medical officer. Upon graduation these gentlemen usually enter into civil practice, but they are available for duty as officers of the Medical Department when the army is extended in active service.

The subject of correspondence schools in this connection, advanced by Major Ames, is worthy of consideration. I have the honor to be for the moment a member of the Staff of the Infantry and Cavalry School, Fort Leavenworth, the function of which is to instruct the officers of those arms in the military art. My part of the work, as you doubtless infer, is the teaching of military hygiene. With the passage of what is known as the Dick bill the question of the instruction of officers of the state forces came up for consideration by the school staff. I took the matter up with General Bell (the Commandant) and suggested that inasmuch as it would be possible for only a small number of the militia officers to avail themselves of this instruction in person, that we might organize a correspondence school, of which officers of the line of the army, as well as those of the state forces could avail themselves in obtaining a knowledge of the military art.

After giving considerable thought to the suggestion General Bell concluded that it would be impracticable at this time to undertake a correspondence school in connection with the college because such a school would require a very large teaching staff, would involve a great deal of special work, and would demand a class of students who would obligate themselves to pursue the course faithfully, the latter of which it was believed could only be accomplished by the offer of some substantial reward. For these reasons General Bell concluded to postpone further consideration of the matter for the present.

This year the War Department has authorized an officer of the Massachusetts Militia to study the methods of the college with the object of obtaining sufficient knowledge of them to enable him to organize a correspondence Military school in Boston. It is possible Major Ames may know something of this.

Here is an experiment that Massachusetts, always in advance, proposes to make for herself, and it is possible excellent results will follow. If such



proves to be the case, then can other states take up this same work, and a department can be added for the instruction of medical officers as well. This suggestion which is but another phase of Major Ames' thought may be worthy of trial.

I think the foregoing crudely perhaps, but fairly represents the views held by the majority of officers of my corps, and they certainly indicate no desire to aggrandize ourselves at the expense of anybody. Indeed were we more aggressive I believe it would be better. It goes without saying that we who are specialists in medico-military work should, in active service be placed in administrative positions, if we have demonstrated our fitness for such work. But these positions are not necessarily confined to officers of the regular establishment alone, and never were. They have been equally open to officers of volunteers, when the latter have learned the lesson, and some of the finest medico-military specialists have come from that branch of our army.

I have but a word to add. Let us not lose sight of the fact that we of the Association of Military Surgeons have identical aspirations towards which we are lighted by the lamps of patriotism and altruism. We cannot hope for perfection but the nearer we approach to our ideals, the better will we fulfill the object of our existence; the prevention of disease and the succor of the sick and wounded soldiers. These are grand ideals and personalities should never be permitted to belittle them. [Applause.]

CAPTAIN JAMES P. WARBASSE, N.G.N.Y.— I believe that the best interests of the medical profession and the medical military man would be served if it were possible for us to vie only with one another in striving for medical improvement and if it were possible to do without military rank. We are doctors first and essentially. Unfortunately the army is so constructed that a medical officer to carry out his work must have some authority. That being the case, the subject under discussion represents a question of much importance. This matter of the contract surgeon, which from the beginning has served to degrade the medical profession, continues to exist. Notwithstanding measures for the amelioration of his condition, we still have the contract surgeon, the man who does the medical work of the army in time of war, and whose treatment at the hands of his country should be a matter of shame to a civilized people. I believe the suggestion made by the reader of the paper contains the solution of the problem; and I think this association is to be congratulated upon having presented to it a practical solution of this matter of bringing to the service of the army medical men from civil life. In time of war the few medical men of the regular army are but a very small handful compared with the medical men who must be called from civil life to do the medical work.

We are all familiar with the intolerable conditions under which the acting assistant surgeons worked. Unfortunately these conditions pursue him after he has left the army. The man who occupies a military position and

who has held military rank, after his term of military service expires enters into civil life with some honor and credit. With the acting assistant surgeon it is different. I am in a position to illustrate the manner in which the laws governing the acting assistant surgeon follow him into civil life and discourage men from following that branch of the service. For example, I will cite a case that occurred in a metropolitan city, in which two physicians from the health department went into the army as acting assistant surgeons at the risk of losing their municipal positions. When they returned they were reinstated because public sentiment would not have them dismissed. Later the state in which the city was located passed a law granting authority to reimburse city employees who had been in the service during the Spanish war. These men were declined reimbursement because it was ruled by the comptroller of the city that they were not soldiers. The fact that these two were refused recognition cast a suspicion over their alleged military service. The War Department of the United States was communicated with and it denied that these two medical men were either officers or soldiers. As far as any recognition was concerned, to have enjoyed a summer's holiday at a New York fort, as assistant surgeon would have availed them more than to have served on the field in Cuba in the capacity of acting assistant surgeon. Their neighbors and friends had supposed that they were at the front in the War, but when it was found that they were not eligible to the bounty granted to soldiers and officers, it is wondered where they were. This is but a single one of the examples which might be cited to illustrate how the contumely which is his in the service follows the contract surgeon into civil life. It bears testimony to the patriotism of medical men that so large a number can be found to serve under these conditions. I think it is high time and necessary that this association should take a hand in an effort to correct these conditions with which we are all familiar. The admirable paper by the member from Massachusetts offers a solution to the problem, and I endorse it heartily. [Applause.]

MAJOR JEFFERSON R. KEAN, U.S.A.—It had not been my intention to make a speech and the five minutes allowed me will be ample for what I have to say. In reply to Major Ames I simply wish to assure the members of this Association that my chief, the Surgeon General, has no deep-laid plots against the Constitution of the United States or the rights and liberties of any one, and no one would be more amazed I think, than he, to see what a formidable superstructure the gentleman's imagination has reared upon so slim a foundation of suspicion and misinterpretation.

The abstract of Major Ames' paper published in our program contains no whisper or suggestion of the vials of wrath which have just been out-poured, and which seem to be a late and unfortunate addition prompted by the contents of a recent personal letter written by a medical officer in no way connected with the office of the Surgeon General, who by the way, has been absent in Europe since six weeks before that letter was written.

The specifications to the charge seem to be two, first that the number of reserve medical officers provided by the bill is not limited, and second that no provision is made for their instruction by the Army Medical School. Of course it is a great pity that the Surgeon General could not follow implicitly and in all its details the scheme submitted by the gentleman from Massachusetts, but he felt that there were others who were at least as representative of the medical profession, as for example the President of the American Medical Association, who thought that if the examinations for these commissions were free to all and independent of political influence they might have a valuable effect in aiding to establish a much-to-be-desired standard of medical education in this country.

The absurdity of the pretense that the Surgeon General desires to build up a great body of dependents throughout the country not under the control of Congress is evident when it is pointed out that these men will have no official connection with his office until they are called into active service, and will in fact simply constitute an eligible list. When called into active service they have to be paid. Now this pay has to be provided for 50 or 100 or whatever may be the number allowed in the annual appropriation bill. So the control of the number in service by Congress is perfect and continuous and is exercised in the same way that our Government and that of England have always controlled the Army establishment—namely, by the power of the purse. I am scarcely sanguine enough to hope that the number with an unlimited list will ever equal the 4,000 which Dr. Ames generously offers to allow us.

The proposition to inject politics into the appointment of these men instead of having it depend solely on their own merits seems to me utterly undesirable and vicious. The proposal to mix up the National Guard medical officers in it shows that the purpose of this reserve has not been clearly understood. The Reserve Medical Corps has no connection whatever with the State troops, but is a part of the Regular establishment and intended to supplement the numerical deficiencies of the Regular Medical Corps. This is clearly stated in the bill and the Reserve Corps is not intended to conflict with or trespass upon the medical organization of the Organized Militia. It being a part of the Regular Department it is hard to see why the control of it by the head of that Department should be so much resented.

As regards the instruction of the Reserve Corps at the Army Medical School either personally or by correspondence, that is a bridge which the Surgeon General probably does not wish to cross until he comes to it. At present the benefits of the School have by the Dick Bill been extended to the great body of Medical Officers of the Organized Militia and the problem before the Department is how, with the small accommodations of the School, to meet this large and important responsibility, which I think you will all admit takes precedence of the question of educating a Corps which has as yet no existence.

The promptness with which National Guard officers have taken advantage of this right is very gratifying. This year they compose nearly half the School and next year the prospects are that the War Department will be overwhelmed with applications.

The applicability of the correspondence method to this School is a debatable question which certainly requires careful investigation and perhaps trial before Congress is asked to saddle it upon us by legislation.

In conclusion I desire to say that the Surgeon General is always open to suggestions and new ideas, and that he earnestly desires the support of the Medical Profession and of this Association. But it seems somewhat unreasonable that any one individual should shoulder aside all other advisers and demand in the name of the medical profession that his own ideas have precedence of all others and that they be with all their crudities and complexities forced upon the Medical Department, without change or modification. [Applause].

MAJOR AZEL AMES, U.S.V.—I simply wish to say, asking pardon for taking any more time, because you have other matters to claim your attention, that I want to emphasize this fact, that while there is no fear that the Surgeon General will designedly transgress the Constitution, a law as loose and as contrary to public policy as is proposed by him, would make it possible in the hands of a bad man to do that which I have outlined. Not only that, it is just and right, or it is not, that the men who serve their country from the great medical profession in civil life should have equal opportunity with other men, their professional brothers, serving the country, and that these men from civil life should have every opportunity to become and do their best and not be relegated to the rear as subordinates and inferiors purposely kept so. I deplore as much as anybody the fact that there is being so much consideration necessarily given to medical military rank, but there will never come a time when conditions that are quite possible to great standing armies of European monarchies will obtain, or be tolerable, in the armies that are the National Guard of the United States. It is proposed to deprive these men of the knowledge that the United States is willing to pay for and to keep them ignorant that they may be made and kept subordinates. To bring about results that are enduring and righteous we must bring about some such amelioration of present conditions as I have suggested. And this will be done if, and as soon as, the great medical profession of the country unites in demanding it. [Applause.]

## THE ROLL OF HONOR FOR 1903-1904.

BY CAPTAIN SAMUEL CECIL STANTON,  
ASSISTANT SURGEON IN THE ILLINOIS NATIONAL GUARD;  
CHAIRMAN OF THE NECROLOGY COMMITTEE.

**T**HE Necrology Committee has the honor to report that since the meeting of the Association in 1903, the following nine members have died.

**Lieutenant Colonel Isaac Newton Love**, Medical Director, N.G.Mo., was born in Barry, Ill., September 13, 1848. At the age of thirteen he went to St. Louis, to live in the family of his uncle Dr. J. P. Hodgen, the famous surgeon. After a high-school course he entered the St. Louis Medical College and was graduated in 1872. He served as an interne in the St. Louis City Hospital for two years and then became assistant to Dr. Hodgen. He devoted his attention chiefly to diseases of children and rapidly built up a large and lucrative practice.

For a time he was city physician of St. Louis and also instructor in physiology in the St. Louis Medical College. In 1889 he was appointed Professor of pediatrics in the St. Louis College of Physicians and Surgeons and later became Professor of Diseases of Children in the Marion Sims College of Medicine of St. Louis. He was a frequent contributor to medical literature, and in 1890 founded the *Medical*



Lieut. Col. I. N. Love.

*Mirror* which he conducted up to the time of his death. In 1901 he left St. Louis and located in New York City where he was prepared, as he said, to do the best work of his life.

In 1889 Dr. Love was Medical Director in the National Guard of Missouri and in view of his interest in the first St. Louis meeting of the Association, was elected an honorary member.

He was a member of the American Medical Association, and a trustee of that Association continuously from 1889 to 1901, vice-president in 1893, and chairman of the section of diseases of children in 1899. In 1887 he was elected president of the Mississippi Valley Medical Association and in the same year was made secretary of the pediatric section of the International Medical Congress.

On May 29, 1903, he went abroad with a patient and after seeing her comfortably located in Paris, he returned, sailing on the *Aurania*. He appeared remarkably well and happy and was exceedingly popular on ship board. He frequently expressed himself as feeling ten years younger and manifested his good feeling and high spirits in his customary exuberant way. He was chosen by the passengers to present to the captain and officers of the steamer resolutions of commendation and thanks, and on June 18, while the steamer was in New York Harbor and nearing her pier he had risen to perform this pleasant task, had read the resolutions, and was delivering the presentation speech in his usual happy and felicitous manner, when he suddenly clapped his hand to his head, fell to the deck and died in his cabin from apoplexy a few minutes later.

Dr. Love probably had as large a personal acquaintance among the members of the medical profession in America as any one physician. He was a man of remarkable social qualities and personal attractiveness and was a most agreeable and congenial companion. He was fond of his friends, faithful to them, and was remarkably free from all petty personal or professional jealousies. He was optimistic in his nature and generally saw the silver lining of passing clouds.

**Lieutenant Colonel Charles Frederick William Myers**, N.G.N.J., was born in Buffalo, N. Y., September 16, 1849, the son of Arnold W. and Mary Myers. He received his early education in the common and high schools of Columbus, Ohio, and then taught school in Warren, Ind., and Delaware, Ohio. In 1868 he settled in New York and was instructor in a business college there for two years. In 1870 he moved to Paterson, N. J., and established a business college which he conducted for three years. During this time he commenced the study of medicine under the late Dr. Orson Barnes, entered Long Island College Hospital and pursued his studies there and at the College of Physicians and Surgeons in the City of New York, graduating from the latter institution in 1874. He then entered upon his professional career in Paterson.

He served as coroner of Passaic County for three years and in 1878 was elected city physician of Paterson and served the city with the ability in that capacity until 1890,—a period of twelve years.

He was a member of the American Medical Association, the Medical Society of the State of New Jersey, the Passaic County Medical Society, Jersey City Academy of Medicine, New Jersey Order of Military Surgeons, of which he was at one time president, and the Association of Military Surgeons of the United States of which he became a member in 1891.

He entered the military service of the State in 1881, when the old Light Guard was organized and later became Major and Surgeon of the First Battalion. When the Light Guard was mustered into the state service he continued in it, was made



**Lieut. Col. Charles F. W. Myers.**

Lieutenant Colonel and Medical Director of the First Brigade in 1893, and remained in the service up to the time of his death.

He died at his home in Paterson August 31, 1903, from the effects of an apoplectic seizure after an illness of only an hour and a half. He had been an invalid for several years and had traveled extensively in the hope that rest and change from the routine work of a large practice would prove beneficial.

He was married in 1874 to Miss Catharine Marshall, who died about five years ago.

**Lieutenant Earl Hamilton Fish**, N.G. Colo., was born in Providence, R. I., February 21, 1873, the son of James Coby Fish and Jennie Nevins. He received his early education in the grammar schools of Providence and took his high-school course in Massachusetts. He came to Denver and there took up his



**Lieutenant Earl Hamilton Fish.**

medical studies at the Denver College of Medicine from which he was graduated in 1893, with the highest honors. He served as interne in St. Luke's Hospital, Denver, for a year, and then took a post graduate course at Johns Hopkins University, Baltimore, paying especial attention to surgery. On his return to Denver he became associated with the late Dr. Clayton Parkhill and acted as his as-

sistant for several years. In 1897 he moved to Ouray where he gave special attention to mining surgery. His reputation in that direction became quickly known and during his life in the mining region he invented a number of life-saving devices for quickly bringing injured miners from the shaft to the surface. In the early part of 1894 wearied of the limited field of rural practice Dr. Fish returned to Denver and resumed practice.

In 1895 and 1896 he held the position of lecturer on minor surgery and bandaging in the University of Colorado and later



on was assistant to the chair of surgery in the same institution.

The name of Dr. Fish will be preserved in the books which he wrote and the numerous contributions which he made to the medical literature. Chief among these were "Surgical Technique," Colorado Medical Journal, 1895; "First Aid to Injured Miners," which appeared in the same journal in July, 1898, and has been widely quoted and translated into several languages; "Asepsis in Country and Private Practice—a new Sterilizer," the same journal, 1899; "Blood Examination in the Diagnosis, Prognosis and Treatment of Pneumonia," Medicine, 1899; "The Importance of Blood Examination in Reference to General Anesthetization and Operative Procedures," Annals of Surgery, July, 1898, "Surgery, its Principles and Application," read before the American Medical Association, and "Text-book on Surgery for the Country Practitioner," which was in press at the time of his death.

In addition to the appliances already mentioned Dr. Fish invented a special sterilizer in compact form useful to the country practitioner and a folding irrigator constructed on the principle of the tourist folding drinking cup.

Dr. Fish was a member of the Denver and Denver County Medical Society, the Ouray County Medical Society, Colorado State Medical Society, the American Medical Association, and the Denver Clinical and Pathological Society.

He was commissioned First Lieutenant and Assistant Surgeon and assigned to duty with the First Infantry, N.G.Colo., July 24, 1896, and saw active service during the labor troubles in Leadville and Telluride and was retired in 1897.

He was found dead in bed on the night of July 15th, the cause of death being an acute attack of gastroenteritis which did not even confine him to bed, but which evidently overtaxed a rather weak heart.

Dr. Fish was greatly beloved by his friends and colleagues for his unselfish and generous disposition. In his professional and personal relations he was always a true and polished gentleman and his death in the prime of life is a distinct loss to the medical profession of Colorado and the West.

**Major Charles Andrew Dunham**, F.S.T., was born in Hallowell, Maine, May 25, 1855, the son of Andrew Elliott Dunham and Amanda M. Harver. He received his early education in the public schools, high school and classical school in Hallowell and Freeport, Maine, and then took a course in the business college at Augusta. He began his medical studies in the Medical School of Maine at Bowdoin College, Brunswick, from which he was graduated June 7, 1880. He was assistant demonstrator of anatomy for three years and for two years (1879-1880) was prospector for clinical study under Professor Weeks.

He practiced for two years after his graduation at Topsham, Maine, and was then for four years assistant resident physician at the Boston Public Institutions on Deer Isle, Boston Harbor. From 1885 to 1887 he practiced in St. Augustine, Florida, and went from there to Los Angeles, Cal., where he remained for two years, returning to St. Augustine where he practiced until his removal to Jacksonville. He was a member of the attending staff of Alicia Hospital, St. Augustine, for seven years.



**Major Charles A. Dunham.**

He entered the military service of the State in 1895 and was first a member and then first lieutenant in the Florida State Troops, and in 1895 was appointed first lieutenant and assistant surgeon and assigned to the first battalion, F.S.T. He served in this capacity until the outbreak of the Spanish-American War, when, on the formation of the 1st Florida Volunteer Infantry, he was commissioned first lieutenant and assistant surgeon, U.S.V., and on October 10, 1898, was promoted to captain, and served in this capacity until the regiment was mustered out of the United States service, in February, 1899. On the re-organization of the Florida State Troops by regiments under the Act of 1899, Captain Dunham received his majority, being commissioned June 30, 1900, and was assigned to the First Infantry as surgeon, and served in this capacity until his death.

He was Secretary of the St. John County Medical Association for ten years and was for a long time county physician, agent of the State Board of Health and quarantine physician. He moved to Jacksonville the day before the great fire of May 3, 1901, and was at once placed in charge of the Relief and Emergency Hospital and performed notable service until the hospital was closed two months later. During this time he had charge of 2,500 patients suffering from all kinds of illness and injury.

He became a member of this Association, March 15, 1903.

He died suddenly of heart disease at his residence in Jacksonville, November 18, 1903. His wife survives him.

From the general orders regarding his death the following excerpt is taken: "Dr Dunham was loved by all who knew him, was a good man and very capable as a physician and surgeon. As a medical officer he rendered most efficient service. In civil life he was companionable and kind, possessing the esteem and regard of all who knew him."

In tribute to Major Dunham's memory the flag was ordered placed at half-staff on all armories on the day of his funeral, and the prescribed badge of mourning was worn by all officers of his regiment for thirty days. At his funeral, the non-commissioned officers formed the funeral escort. The procession was headed by the First Regiment Band followed by the First Infantry, the Rifles, and the Artillerymen.

**Major David Lynch Wallace** N.G.N.J., was born in Newark, N. J., January 14, 1855, the son of Daniel Wallace and Deborah Lynch. He received his early education in the schools of Newark and then entered Bellevue Hospital Medical College, New York City, from which he was graduated in 1875. After eighteen months post-graduate work, during part of which time he was house-surgeon at Bellevue Hospital, he began practice in Newark.

He attained great success in this field and in hospital work. He early took a deep interest in the Newark City Hospital and was insistent in urging the erection of the present structure. In 1884 he was appointed health officer of Newark and held this

appointment for six years. In 1891, when the Board of Health was organized, he was named as a member of it and served as its secretary until his last illness.



He was also a member of the State Sewerage Commission and took a deep interest in the question of the pollution of the Passaic River in its bearing on the health of Newark.

He was commissioned Major and Surgeon of the First Regiment, N. G. N. J., August 23, 1886; was transferred to the Medical Department by the act of March 23, 1892; was commissioned Major and Surgeon, First Regiment, March 30, 1903, to date August 23, 1886; and was retired by special orders No. 20, A. G. O., April 13, 1898.

**Major David L. Wallace.**  
 died on March 2, 1904, after an illness of only six days.

While in discharge of his professional duties he contracted

**Lieutenant Colonel Henry McIntire Worthington Moore**, O.N.G., was born in Westchester, Pa., May 30, 1862, the son of Rev. William Eves Moore, D.D., LL.D., and Harriet Francina Foot. He received his general education in the common schools of Westchester, Pa., and Columbus, Ohio, was fitted privately for College by his father and brother, entered Marietta College, Ohio, in September, 1879, and was graduated with the degree of A.B., in 1882. In the same year he entered Columbus Medical College and was graduated in 1885, with the degree of M.D.; and the same year received his degree of A.M. from Marietta College.

Immediately upon his graduation in medicine he began his

work as teacher and served as assistant to the chair of obstetrics and as lecturer on hygiene in Columbus Medical College until 1889, and as lecturer on bacteriology in Starling Medical College, Columbus, from 1895 to 1899.

He became a member of the Association in 1895, served as Chairman of the Committee of Arrangements, in 1897, and as a member of the Executive Committee from 1897 to 1899, and from 1901 to 1903. His other society affiliations included the American Medical Association, Ohio State Medical Society, Columbus Academy of Medicine, the Ohio Society of the Sons of the American Revolution of which he was secretary and treasurer, and the Naval and Military Order of the Spanish-American War.

His military experience began with his enlistment as a private in Company A., Fourteenth Infantry, O.N.G., on July 10, 1880. He was discharged on account of expiration of term of service on July 31, 1889. On March 11, 1892, he was commissioned Captain and Assistant Surgeon and assigned to the First Light Artillery; was made Major and Surgeon of the same command June 30, 1896, and served until December 31, 1899. He



Lieut. Col. Henry M. W. Moore.

was made Lieutenant Colonel and Chief Surgeon of Division, July 17, 1900, and resigned November 23, 1901.

His active service began with his commission as Major and Surgeon of the 1st Ohio Volunteer Light Artillery, May 11, 1898; he was made acting Brigade Surgeon of the Light Artillery Brigade at Camp George H. Thomas, Chickamauga, Georgia, and served in that capacity from May 18 to September 5, and was in command of a provisional hospital for volunteers at Columbus, from October 18, 1898 to March 10, 1899. He was mustered out of the U. S. service May 10, 1899. He was examiner of recruits

for the army in Columbus from March 11, 1899 to December 31, 1899 and from September 14, 1900, until his death. During the muster-in period at the outbreak of the Spanish-American War, Col. Moore served as Acting Assistant Surgeon General of the State, and medical purveyor.

He was ill only a few days, and died August 6 from the effects of an over-dose of chloral, taken to relieve severe pains in the head. He was unmarried and made his home with his mother in Columbus. Col. Moore was one of the most prominent physicians of his home city and leaves a host of friends to mourn his untimely death.



**Sir W. Mitchell Banks.**

of the Royal College of Surgeons of England, in 1869; honorary Doctor of Laws, in Edinburgh in 1899, and in the same year on the occasion of the eightieth birthday of Queen Victoria, received the honor of knighthood. He was demonstrator of anatomy in the University of Glasgow under Allen Thomson, then spent some time as surgeon to the government of Paraguay.

**Sir William Mitchell Banks,** M. D., LL.D., F.R.C.S. Eng., J.P., was born in Edinburgh, Scotland, November 1, 1842, the son of Peter Spalding Banks, Writer to the Signet, and Anne Banks. He received his early education in the Edinburgh Academy and then passed to the University which he entered in 1859 as a medical student, graduating with the degree of M.D., with honors, in 1864. His thesis on "The Wolffian Bodies," which remained for many years the accepted authority on the subject, was awarded a gold medal. He was made a licentiate of the Royal College of Surgeons, Edinburgh, in 1863; Fellow

South America, and finally went to Liverpool, in 1869, as assistant to the eminent surgeon, Mr. E. R. Bickersteth. He soon joined the staff of the Infirmary School of Medicine which was then almost moribund, and was one of those who labored hard and successfully to place the school on an equal footing with other institutions of the country. His special department of the school was anatomy of which he was successively demonstrator, lecturer, professor and finally emeritus professor. He also took a leading part in the movement in favor of higher education in Liverpool which led to the formation of University College in 1882 and culminated in the establishment of the University of Liverpool in 1903. For several years he represented Victoria University on the General Medical Council, and was also at one time a member of the Council of the Royal College of Surgeons of England. In 1875 he succeeded Mr. Reginald Harrison as assistant surgeon to the Royal Infirmary, and two years later he was appointed full surgeon, and served in this capacity for a quarter of a century, when he retired and was appointed consulting surgeon. He was also honorary consulting surgeon to the Bootle Borough Hospital and to the Alexandra Hospital, North Wales.

His contributions to medical literature were numerous, the most important of which related to cancer of the breast and to the radical cure of hernia. In 1897 his address at the Montreal meeting of the British Medical Association on "The Surgeon in Time of War," was a classic, widely-published which added much to the credit of the military surgeon, and on account of which he was in 1899 elected a corresponding member of this Association. He was a member of the British Medical Association and President of the Surgical Section in 1897, an honorary or corresponding member of the Royal Medical Society of Edinburgh, and of the Medical and Harveian societies of London. He was president of the Liverpool Biological Society and of the Liverpool Medical Institution. In 1900 he delivered the Lettsomian Lectures on cancer of the breast.

He died suddenly in Aix-la-Chapelle August 9, from angina pectoris while on his way to Homburg where he had been recommended to go for treatment by Sir Dyce Duckworth.

The Rev. Dr. Watson (Ian Maclaren) in his memorial address said, "Mitchell Banks, as we love to call him, had those fine qualities which he shared with the chiefs of his illustrious profession. He had sound judgment, was open to light from every quarter, but was dazzled by no speculations and tried no wild experiments with the living. Dealing with the issues often of life and death as he did, he depended on knowledge as his best ally. He was a safe and sound man who created and who merited confidence. Above all, there dwelt in him that soul of kindness without which no man can reach the height of his calling in medicine or any other profession. His was a shrewd insight and a clever hand, but his was also a big heart. Because he was so brotherly to every fellow creature and so true to his friends, we loved him living, and now when he is gone we shall keep his memory green."

**Captain Ralph Chandler**, W.N.G., the first corresponding secretary of the Association, was born in Milwaukee, July 18, 1861, the son of Walter Seymour Chandler and Sarah Olivia Kneeland. His early education was received in the Milwaukee public school, a private academy, the Milwaukee High School and Carroll College, Waukesha. After his graduation from college he began the study of medicine with Dr. Solon Marks and after careful preparatory study, entered Rush Medical College, Chicago, in September 1883, and was graduated from that institution in February, 1886. As a result of competitive examination he obtained an internship in the Cook County Hospital and after six months of post-graduate study in Vienna, entered upon his duties in Cook County Hospital, and there served acceptably until April, 1888, when he returned to Milwaukee and began practice.

He held positions as lecturer on surgery and diseases of children to the Wisconsin Training School for Nurses, and lecturer on first aid at St. John's Military Academy, Delafield, Wis. His chief contribution to surgical literature was his paper on the use of wire gauze in fractures which he recommended in 1890. This valuable device was afterward recommended by Dr. Senn to be placed in the surgical chest and in the orderly pouches of the Army.



He took a great interest in the Children's Free Hospital of Milwaukee, of which he was attending surgeon, secretary and later, president of the staff. He was also attending surgeon to the Johnston Emergency Hospital, Milwaukee.

His society membership included the American Medical Association; the Association of Military Surgeons of the United States, of which he was corresponding secretary from 1891 to 1893; Wisconsin State Medical Society; Wisconsin National Guard Association of which he was at one time secretary; Milwaukee Medical Society of which he was curator and vice-president; Chicago Pathological Society, and the alumni associations of Cook County Hospital and of Rush Medical College. He was also a member of the Sons of the Revolution and of the Loyal Legion.

His military service began with his enlistment in the First Light Battery, W.N.G., May 11, 1885. He was commissioned Assistant Surgeon with rank of First Lieutenant, on June 24, 1899, and was commissioned Surgeon with the rank of Captain, June 29, 1893. He was mustered out of the service July 11, 1898, and was recommissioned surgeon, with rank of Captain, November 25, 1898. His active service included tours of duty at eleven annual camps and riot duty for seven days at Oshkosh, Wis., in May, 1898.

His last illness began about August 5, and on August 10, he was operated on at the Knowlton Hospital for intestinal obstruction, but sank rapidly after the operation and died, August 12, about 4 p. m.

He was married in 1894 to Miss Louise Eldred who survives him.



Captain Ralph Chandler.

The funeral services were held from his residence August 14. The active pallbearers were non-commissioned officers detailed from the First Light Battery, W.N.G., of which he had been surgeon for many years and the honorary pallbearers were Drs. Solon Marks, E. Copeland, F. E. Wallbridge, William Mackie Thomas E. Hay, C. H. Stoddard, William Thorndike, Gilbert E. Seaman, H. E. Holbrook, Major Howard Green, Major B. H. Dally and Capt. C. F. Ludington.

In the death of Captain Chandler, the medical profession lost one of its best known and most progressive surgeons, who possessed the confidence of his fellow surgeons and practitioners alike, and who promised to make for himself a still greater name. He was reckoned as an especial authority on fractures and was ever ready to devote his skill and experience to the suffering irrespective of their position in life or condition.

**Dr. Henry Tuck**, formerly Acting Assistant Surgeon, U.S.A., was born in Barnstable, Mass., May 9, 1842, the son of Dr. Henry Tuck and Caroline Cricken. His early education



**Dr. Henry Tuck, U.S.A.**

was received in the public schools of Boston; he received his degree of A.B. from Harvard University in 1863, and was graduated in medicine from Harvard University Medical School in 1867. He then went abroad, spending a year or more in the study of his profession, chiefly in Vienna, and returning home, began the practice of his profession in Boston in September 1868. His industry and professional skill were soon recognized, and he received several important professional appointments in-

cluding that of visiting physician to the Boston Lying-in Hospital, physician to the out-patient department of the Massachusetts Gen-

eral Hospital and manager of several leading charitable societies.

He was a member of the New York County Medical Society; New York County Medical Association; New York Academy of Medicine, and the Harvard Medical Club, and became a member of this Association in 1901.

During March and April, 1865, he served as acting assistant surgeon in the United States Army, in the Army of the James, taking part in the last campaign of that Army and being present at the surrender of General Lee's Army at Appomattox. Serious illness then compelled his retirement from the Army.

Dr. Tuck early became interested in life insurance, made it his study his life work, and achieved great prominence in this direction. In 1877 he was made medical referee and examiner for the Mutual Life Insurance Company of New York and later served in a similar capacity with the United States Life Insurance Company. In 1877 he became one of the medical directors of the New York Life Insurance Company and displayed such knowledge, industry, energy and administrative ability that he was rapidly promoted and pushed forward in the administration of the affairs of that corporation, becoming successively trustee in 1878, second vice-president in 1883, and vice-president in 1885.

He died, after a long illness, at his summer home in Seabright, N. J., September 2, 1904, aged 62.

#### PENETRATING WOUNDS OF THE LUNG.

**I**N a case of stab wound of the lung (*Archives de Médecine et de Pharmacie Militaires*), with great hemorrhage and severe dyspnoea, Grunert enlarged the wound by resecting a rib, exposed a wound 3 cm. by 2 cm. deep, pulled the lung partly out of the thorax, and sutured the wound with catgut. A rapid cure followed. Grunert advises frequent interference in stab wounds of the lung with severe symptoms. He declares that surgeons interfere habitually too late. Much time is saved the patient, and the exudate is removed, thus preventing danger of infection.—S. M. DELOFFRE.

## ALTITUDE AND EXPANSION.

By PAUL M. CARRINGTON, M.D.

FORT STANTON, NEW MEXICO.

SURGEON IN THE UNITED STATES PUBLIC HEALTH AND MARINE  
HOSPITAL SERVICE.

I AM aware that my title is a little high sounding and comprehensive for what is intended to be a very brief note on the subject covered thereby. It is sometimes true, however, that an apt or taking title will attract attention to an article, which might otherwise pass unnoticed, and I believe that I shall be able to present a grain of truth of considerable practical value in these brief notes.

I am satisfied that sending consumptives to high altitudes indiscriminately and without carefully considering the eligibility of each individual for such treatment has shortened the lives of many, and doubtless caused the early death of some, whose cases under more judicious management, might have become arrested or cured.

In looking over the history charts of the Fort Stanton Sanatorium, of which I have had command for nearly four years past, I have been struck by the correspondence of a good expansion on arrival with resulting improvement or cure; and on the other hand with the frequency with which cases in which a very limited expansion was recorded terminated in death. The importance of expansion (as indicating the vital capacity of a patient) as a factor to be considered in determining whether or not a patient should be advised to seek treatment in a high altitude is one of the good points brought out in "High Altitudes for the Consumptive" by A. Edgar Tussey, M.D., of Philadelphia. This little monograph contains much excellent matter, which might be read with profit by Eastern physicians, upon whose advice consumptives resort to the arid south-west, a region which offers any desired altitude, in addition to other desirable climatic conditions, such as dryness, and a very large percentage of sunny days.

## ALTITUDE.

Altitude is defined by Webster as "space extended upwards," and as used here, of course, refers to elevation as compared with sea-level. The altitude to which these observations particularly refer is that of Fort Stanton, New Mexico, which is 6150 feet, and may be classed as a moderately high altitude. According to the tables of Prof. Dewar, as supplied me in letters from Prof. Moore, Chief of the Weather Bureau, and Section Director Linney at Santa Fe, New Mexico, there is at the altitude of Fort Stanton no perceptible difference in the relative amount of oxygen and nitrogen contained in the atmosphere by volume, but there is a very decided decrease in the actual amount of oxygen *by weight* in a given volume, as well as in humidity, and the barometric pressure is but four-fifth of the pressure at sea-level. In other words a column of atmosphere at the elevation of Fort Stanton weighs 12 pounds to the square inch instead of 15 pounds as at sea-level; and while at each inspiration individuals of the same vital capacity will inspire the same volume of oxygen at the altitude of 6150 feet as at sea-level, the actual amount of oxygen inspired by weight is materially less, and owing to the decrease in pressure there is less oxygen combining with the haemoglobin of the blood. It is a clinical observation, with only one exception in our experience, that there is an immediate and rapid increase in the haemoglobin of patients admitted to the Fort Stanton Sanatorium. This is recognized as an effort of nature to readjust the individual to his new environment and provide for a greater assimilation of oxygen, and also the strongest proof of the truth of the foregoing statement. The single exception referred to was a case, which on arrival showed 35% of haemoglobin, which we were never able to increase beyond 45 or 50 per cent. We at first suspected pernicious aenemia in this case, but subsequent examination of the feces revealed the presence of the *Anchylostoma Duodenale* (Old World Hook-worm), and appropriate treatment resulted in the expulsion of the parasites with an immediate increase in haemoglobin within a few weeks from 35 to 95 per cent. This man's complexion, formerly sallow and earthy, is now ruddy and he is making a rapid recovery.

## EXPANSION.

Expansion is a measurement of chest movement which takes place in inspiration embracing the movement between forcible expiration and forcible inspiration and is a valuable observation only as indicating the vital capacity, which is the term applied to the volume of air, which can be expelled from the chest after the deepest possible inspiration. The normal vital capacity of a man of average height, 5 feet 8 inches, is stated by Landois & Stirling to be 230 cubic inches, and the relation between expansion and vital capacity is stated by Tussey to be 1 to 60. In other words the expansion of the average man in health should be  $3\frac{5}{8}$  inches, the measurement being taken around the chest at the nipple line.

Expansion and vital capacity are affected by the following circumstances:

1. *Height.* Every inch added to the height of a person between five and six feet gives an increase of 8 cubic inches to the vital capacity.

2. *Increase in body weight* of more than 7 pounds above the normal decreases the vital capacity by about  $2\frac{1}{2}$  cubic inches for each two pounds of increase.

3. *Age.* The vital capacity is at the maximum at 35 years of age, and decreases upward to 65 and backward to 15 by a little more than 1 cubic inch for each year.

4. *Sex.* It is less for a women than for a man; the ratio being 7 to 10.

5. *Position.* More air is respired in an erect than in a recumbent position.

6. *Disease.* The vital capacity is decreased by abdominal and thoracic diseases.

Of course, the spirometer is the most accurate means of measuring the vital capacity, but for practical purposes expansion is a fairly reliable index of the vital capacity, although muscular contraction is recognized as a source of error.

REASONS WHY EXPANSION SHOULD GOVERN IN DETERMINING THE PROPER ALTITUDE FOR A CONSUMPTIVE PATIENT.

I wish to emphasize the fact that this article is in no sense a scientific treatise on the subject, but rather a practical observation based upon clinical experience.

It stands to reason that Case 1 with two inches of expansion representing one hundred twenty cubic inches of vital capacity, and barely able, at sea-level, to appropriate sufficient oxygen to maintain an ordinary metabolism should not do so well at an altitude of over six thousand feet as Case 2, with an expansion of four inches, representing a vital capacity of three hundred and forty cubic inches, and consequent appropriation of twice the volume of oxygen. The blood of Case 1 being insufficiently oxygenated fails to perform its functions completely and the patient suffers from dyspnoea and perhaps from cyanosis with increased cough and expectoration and extension of tuberculous areas, nature striving, without avail, to increase the haemoglobin with sufficient rapidity to supply the essential oxygen, and on the other hand, Case, with a moderate increase of haemoglobin is amply supplied with oxygen, all the symptoms abate and at the first examination, three months after admission, there is usually found a marked diminution of lung-tissue involved. In the two cases it is supposed that the percentage of lung-tissue compromised is the same. Of course the eligibility of patients for high-altitude treatment is modified by the extent of involvement and the stage of disease as well as by complicating diseases of various kinds.

STATISTICS.

Contrary to the usual object of statistics, these are intended to show the percentage of fatal cases, rather than the percentage of recoveries. The cases included in these statistics represent a number in which the treatment has terminated, and in a number of the cases some of the observations are blank. These are cases which occurred prior to the adoption of the present forms and before we had begun to make all the observations included in our present forms.





TABLE 3.  
18 CASES HAVING BETWEEN  
3 AND 4 INCHES EXPANSION

[illegible]

Day 49 0 0 21 20 10 8 + + 0 0 0 0 60 / A 8 16 M  
 Day 46 - 17 20 90 - + + + 0 90 / 1 7 16 M  
 D 28 0 20 17 13 10 15 + + 0 + + - 3 D 13 16 M  
 - 23 + 0 60 - - - 0 + 0 + + - 1 8 16 M  
 H 26 0 20 - 16 48 2 0 + + 0 + 0 - 1 6 16 M  
 H 30 0 20 17 14 70 2 + + 0 0 0 - 1 A 16 16 M

[illegible]

Five of this series were discharged "improved" and four "arrested or cured."

TABLE NO. 2. Shows 11 cases having an expansion of 4 inches. Eight of these were discharged "improved," one "died," one was arrested or cured, and one was under treatment less than 30 days. The fatal case was improving very satisfactorily, having gained 25 pounds in weight when he developed that very fatal accident of tuberculosis, pneumothorax, which caused his death.

TABLE NO. 3. Includes 48 cases, showing an expansion of between 3 and 4 inches; of these 11 died, one was not improved, 18 were improved, 15 arrested or cured and 3 were under treatment less than one month and are eliminated.

TABLE NO. 4. Includes 11 cases having three inches of ex

TABLE 4  
11 CASES HAVING 3 INCHES  
EXPANSION

Rating	Age	Family History	Pre-existing disease	Loss of weight	Respirations, per minute	Pulse, per minute	Duration of Active Symptom (months)	Tubercle Bacille	Spew	Wheeze	Chest pains	Hemorrhages	Hemoglobin, per cent	Stage on admission	Result	Stay at Sanatorium (months)	Living on consolidated (Mts.)	Living on involved (Mts.)
Dy 31	0	6	17	20	+	+	+	+	+	+	+	+	+	+	+	+	+	+
37	0	20	47	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Dy 40	0	20	44	20	+	+	+	+	+	+	+	+	+	+	+	+	+	+
H 27	0	—	20	20	+	+	+	+	+	+	+	+	+	+	+	+	+	+
D 27	1	20	7	22	22	+	+	+	+	+	+	+	+	+	+	+	+	+
D 28	0	20	0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
D 19	0	20	20	15	20	+	+	+	+	+	+	+	+	+	+	+	+	+
H 25	1	20	0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
D 29	1	20	11	18	20	+	+	+	+	+	+	+	+	+	+	+	+	+
D 29	0	20	13	18	20	+	+	+	+	+	+	+	+	+	+	+	+	+
H 37	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Summary: Totals and Averages: 10  
 3 Males 5 F 1 M  
 2 of 10 4-5 Males 2 F 4-6-7-8-9-10-11-12-13-14-15-16-17-18-19-20-21-22-23-24-25-26-27-28-29-30-31-32-33-34-35-36-37-38-39-40-41-42-43-44-45-46-47-48-49-50-51-52-53-54-55-56-57-58-59-60-61-62-63-64-65-66-67-68-69-70-71-72-73-74-75-76-77-78-79-80-81-82-83-84-85-86-87-88-89-90-91-92-93-94-95-96-97-98-99-100-101-102-103-104-105-106-107-108-109-110-111-112-113-114-115-116-117-118-119-120-121-122-123-124-125-126-127-128-129-130-131-132-133-134-135-136-137-138-139-140-141-142-143-144-145-146-147-148-149-150-151-152-153-154-155-156-157-158-159-160-161-162-163-164-165-166-167-168-169-170-171-172-173-174-175-176-177-178-179-180-181-182-183-184-185-186-187-188-189-190-191-192-193-194-195-196-197-198-199-200-201-202-203-204-205-206-207-208-209-210-211-212-213-214-215-216-217-218-219-220-221-222-223-224-225-226-227-228-229-230-231-232-233-234-235-236-237-238-239-240-241-242-243-244-245-246-247-248-249-250-251-252-253-254-255-256-257-258-259-260-261-262-263-264-265-266-267-268-269-270-271-272-273-274-275-276-277-278-279-280-281-282-283-284-285-286-287-288-289-290-291-292-293-294-295-296-297-298-299-300-301-302-303-304-305-306-307-308-309-310-311-312-313-314-315-316-317-318-319-320-321-322-323-324-325-326-327-328-329-330-331-332-333-334-335-336-337-338-339-340-341-342-343-344-345-346-347-348-349-350-351-352-353-354-355-356-357-358-359-360-361-362-363-364-365-366-367-368-369-370-371-372-373-374-375-376-377-378-379-380-381-382-383-384-385-386-387-388-389-390-391-392-393-394-395-396-397-398-399-400-401-402-403-404-405-406-407-408-409-410-411-412-413-414-415-416-417-418-419-420-421-422-423-424-425-426-427-428-429-430-431-432-433-434-435-436-437-438-439-440-441-442-443-444-445-446-447-448-449-450-451-452-453-454-455-456-457-458-459-460-461-462-463-464-465-466-467-468-469-470-471-472-473-474-475-476-477-478-479-480-481-482-483-484-485-486-487-488-489-490-491-492-493-494-495-496-497-498-499-500-501-502-503-504-505-506-507-508-509-510-511-512-513-514-515-516-517-518-519-520-521-522-523-524-525-526-527-528-529-530-531-532-533-534-535-536-537-538-539-540-541-542-543-544-545-546-547-548-549-550-551-552-553-554-555-556-557-558-559-560-561-562-563-564-565-566-567-568-569-570-571-572-573-574-575-576-577-578-579-580-581-582-583-584-585-586-587-588-589-590-591-592-593-594-595-596-597-598-599-600-601-602-603-604-605-606-607-608-609-610-611-612-613-614-615-616-617-618-619-620-621-622-623-624-625-626-627-628-629-630-631-632-633-634-635-636-637-638-639-640-641-642-643-644-645-646-647-648-649-650-651-652-653-654-655-656-657-658-659-660-661-662-663-664-665-666-667-668-669-670-671-672-673-674-675-676-677-678-679-680-681-682-683-684-685-686-687-688-689-690-691-692-693-694-695-696-697-698-699-700-701-702-703-704-705-706-707-708-709-710-711-712-713-714-715-716-717-718-719-720-721-722-723-724-725-726-727-728-729-730-731-732-733-734-735-736-737-738-739-740-741-742-743-744-745-746-747-748-749-750-751-752-753-754-755-756-757-758-759-760-761-762-763-764-765-766-767-768-769-770-771-772-773-774-775-776-777-778-779-780-781-782-783-784-785-786-787-788-789-790-791-792-793-794-795-796-797-798-799-800-801-802-803-804-805-806-807-808-809-810-811-812-813-814-815-816-817-818-819-820-821-822-823-824-825-826-827-828-829-830-831-832-833-834-835-836-837-838-839-840-841-842-843-844-845-846-847-848-849-850-851-852-853-854-855-856-857-858-859-860-861-862-863-864-865-866-867-868-869-870-871-872-873-874-875-876-877-878-879-880-881-882-883-884-885-886-887-888-889-890-891-892-893-894-895-896-897-898-899-900-901-902-903-904-905-906-907-908-909-910-911-912-913-914-915-916-917-918-919-920-921-922-923-924-925-926-927-928-929-930-931-932-933-934-935-936-937-938-939-940-941-942-943-944-945-946-947-948-949-950-951-952-953-954-955-956-957-958-959-960-961-962-963-964-965-966-967-968-969-970-971-972-973-974-975-976-977-978-979-980-981-982-983-984-985-986-987-988-989-990-991-992-993-994-995-996-997-998-999-1000-1001-1002-1003-1004-1005-1006-1007-1008-1009-1010-1011-1012-1013-1014-1015-1016-1017-1018-1019-1020-1021-1022-1023-1024-1025-1026-1027-1028-1029-1030-1031-1032-1033-1034-1035-1036-1037-1038-1039-1040-1041-1042-1043-1044-1045-1046-1047-1048-1049-1050-1051-1052-1053-1054-1055-1056-1057-1058-1059-1060-1061-1062-1063-1064-1065-1066-1067-1068-1069-1070-1071-1072-1073-1074-1075-1076-1077-1078-1079-1080-1081-1082-1083-1084-1085-1086-1087-1088-1089-1090-1091-1092-1093-1094-1095-1096-1097-1098-1099-1100-1101-1102-1103-1104-1105-1106-1107-1108-1109-1110-1111-1112-1113-1114-1115-1116-1117-1118-1119-1120-1121-1122-1123-1124-1125-1126-1127-1128-1129-1130-1131-1132-1133-1134-1135-1136-1137-1138-1139-1140-1141-1142-1143-1144-1145-1146-1147-1148-1149-1150-1151-1152-1153-1154-1155-1156-1157-1158-1159-1160-1161-1162-1163-1164-1165-1166-1167-1168-1169-1170-1171-1172-1173-1174-1175-1176-1177-1178-1179-1180-1181-1182-1183-1184-1185-1186-1187-1188-1189-1190-1191-1192-1193-1194-1195-1196-1197-1198-1199-1200-1201-1202-1203-1204-1205-1206-1207-1208-1209-1210-1211-1212-1213-1214-1215-1216-1217-1218-1219-1220-1221-1222-1223-1224-1225-1226-1227-1228-1229-1230-1231-1232-1233-1234-1235-1236-1237-1238-1239-1240-1241-1242-1243-1244-1245-1246-1247-1248-1249-1250-1251-1252-1253-1254-1255-1256-1257-1258-1259-1260-1261-1262-1263-1264-1265-1266-1267-1268-1269-1270-1271-1272-1273-1274-1275-1276-1277-1278-1279-1280-1281-1282-1283-1284-1285-1286-1287-1288-1289-1290-1291-1292-1293-1294-1295-1296-1297-1298-1299-1300-1301-1302-1303-1304-1305-1306-1307-1308-1309-1310-1311-1312-1313-1314-1315-1316-1317-1318-1319-1320-1321-1322-1323-1324-1325-1326-1327-1328-1329-1330-1331-1332-1333-1334-1335-1336-1337-1338-1339-1340-1341-1342-1343-1344-1345-1346-1347-1348-1349-1350-1351-1352-1353-1354-1355-1356-1357-1358-1359-1360-1361-1362-1363-1364-1365-1366-1367-1368-1369-1370-1371-1372-1373-1374-1375-1376-1377-1378-1379-1380-1381-1382-1383-1384-1385-1386-1387-1388-1389-1390-1391-1392-1393-1394-1395-1396-1397-1398-1399-1400-1401-1402-1403-1404-1405-1406-1407-1408-1409-1410-1411-1412-1413-1414-1415-1416-1417-1418-1419-1420-1421-1422-1423-1424-1425-1426-1427-1428-1429-1430-1431-1432-1433-1434-1435-1436-1437-1438-1439-1440-1441-1442-1443-1444-1445-1446-1447-1448-1449-1450-1451-1452-1453-1454-1455-1456-1457-1458-1459-1460-1461-1462-1463-1464-1465-1466-1467-1468-1469-1470-1471-1472-1473-1474-1475-1476-1477-1478-1479-1480-1481-1482-1483-1484-1485-1486-1487-1488-1489-1490-1491-1492-1493-1494-1495-1496-1497-1498-1499-1500-1501-1502-1503-1504-1505-1506-1507-1508-1509-1510-1511-1512-1513-1514-1515-1516-1517-1518-1519-1520-1521-1522-1523-1524-1525-1526-1527-1528-1529-1530-1531-1532-1533-1534-1535-1536-1537-1538-1539-1540-1541-1542-1543-1544-1545-1546-1547-1548-1549-1550-1551-1552-1553-1554-1555-1556-1557-1558-1559-1560-1561-1562-1563-1564-1565-1566-1567-1568-1569-1570-1571-1572-1573-1574-1575-1576-1577-1578-1579-1580-1581-1582-1583-1584-1585-1586-1587-1588-1589-1590-1591-1592-1593-1594-1595-1596-1597-1598-1599-1600-1601-1602-1603-1604-1605-1606-1607-1608-1609-1610-1611-1612-1613-1614-1615-1616-1617-1618-1619-1620-1621-1622-1623-1624-1625-1626-1627-1628-1629-1630-1631-1632-1633-1634-1635-1636-1637-1638-1639-1640-1641-1642-1643-1644-1645-1646-1647-1648-1649-1650-1651-1652-1653-1654-1655-1656-1657-1658-1659-1660-1661-1662-1663-1664-1665-1666-1667-1668-1669-1670-1671-1672-1673-1674-1675-1676-1677-1678-1679-1680-1681-1682-1683-1684-1685-1686-1687-1688-1689-1690-1691-1692-1693-1694-1695-1696-1697-1698-1699-1700-1701-1702-1703-1704-1705-1706-1707-1708-1709-1710-1711-1712-1713-1714-1715-1716-1717-1718-1719-1720-1721-1722-1723-1724-1725-1726-1727-1728-1729-1730-1731-1732-1733-1734-1735-1736-1737-1738-1739-1740-1741-1742-1743-1744-1745-1746-1747-1748-1749-1750-1751-1752-1753-1754-1755-1756-1757-1758-1759-1760-1761-1762-1763-1764-1765-1766-1767-1768-1769-1770-1771-1772-1773-1774-1775-1776-1777-1778-1779-1780-1781-1782-1783-1784-1785-1786-1787-1788-1789-1790-1791-1792-1793-1794-1795-1796-1797-1798-1799-1800-1801-1802-1803-1804-1805-1806-1807-1808-1809-1810-1811-1812-1813-1814-1815-1816-1817-1818-1819-1820-1821-1822-1823-1824-1825-1826-1827-1828-1829-1830-1831-1832-1833-1834-1835-1836-1837-1838-1839-1840-1841-1842-1843-1844-1845-1846-1847-1848-1849-1850-1851-1852-1853-1854-1855-1856-1857-1858-1859-1860-1861-1862-1863-1864-1865-1866-1867-1868-1869-1870-1871-1872-1873-1874-1875-1876-1877-1878-1879-1880-1881-1882-1883-1884-1885-1886-1887-1888-1889-1890-1891-1892-1893-1894-1895-1896-1897-1898-1899-1900-1901-1902-1903-1904-1905-1906-1907-1908-1909-1910-1911-1912-1913-1914-1915-1916-1917-1918-1919-1920-1921-1922-1923-1924-1925-1926-1927-1928-1929-1930-1931-1932-1933-1934-1935-1936-1937-1938-1939-1940-1941-1942-1943-1944-1945-1946-1947-1948-1949-1950-1951-1952-1953-1954-1955-1956-1957-1958-1959-1960-1961-1962-1963-1964-1965-1966-1967-1968-1969-1970-1971-1972-1973-1974-1975-1976-1977-1978-1979-1980-1981-1982-1983-1984-1985-1986-1987-1988-1989-1990-1991-1992-1993-1994-1995-1996-1997-1998-1999-2000-2001-2002-2003-2004-2005-2006-2007-2008-2009-2010-2011-2012-2013-2014-2015-2016-2017-2018-2019-2020-2021-2022-2023-2024-2025-2026-2027-2028-2029-2030-2031-2032-2033-2034-2035-2036-2037-2038-2039-2040-2041-2042-2043-2044-2045-2046-2047-2048-2049-2050-2051-2052-2053-2054-2055-2056-2057-2058-2059-2060-2061-2062-2063-2064-2065-2066-2067-2068-2069-2070-2071-2072-2073-2074-2075-2076-2077-2078-2079-2080-2081-2082-2083-2084-2085-2086-2087-2088-2089-2090-2091-2092-2093-2094-2095-2096-2097-2098-2099-2100-2101-2102-2103-2104-2105-2106-2107-2108-2109-2110-2111-2112-2113-2114-2115-2116-2117-2118-2119-2120-2121-2122-2123-2124-2125-2126-2127-2128-2129-2130-2131-2132-2133-2134-2135-2136-2137-2138-2139-2140-2141-2142-2143-2144-2145-2146-2147-2148-2149-2150-2151-2152-2153-2154-2155-2156-2157-2158-2159-2160-2161-2162-2163-2164-2165-2166-2167-2168-2169-2170-2171-2172-2173-2174-2175-2176-2177-2178-2179-2180-2181-2182-2183-2184-2185-2186-2187-2188-2189-2190-2191-2192-2193-2194-2195-2196-2197-2198-2199-2200-2201-2202-2203-2204-2205-2206-2207-2208-2209-2210-2211-2212-2213-2214-2215-2216-2217-2218-2219-2220-2221-2222-2223-2224-2225-2226-2227-2228-2229-2230-2231-2232-2233-2234-2235-2236-2237-2238-2239-2240-2241-2242-2243-2244-2245-2246-2247-2248-2249-2250-2251-2252-2253-2254-2255-2256-2257-2258-2259-2260-2261-2262-2263-2264-2265-2266-2267-2268-2269-2270-2271-2272-2273-2274-2275-2276-2277-2278-2279-2280-2281-2282-2283-2284-2285-2286-2287-2288-2289-2290-2291-2292-2293-2294-2295-2296-2297-2298-2299-2300-2301-2302-2303-2304-2305-2306-2307-2308-2309-2310-2311-2312-2313-2314-2315-2316-2317-2318-2319-2320-2321-2322-2323-2324-2325-2326-2327-2328-2329-2330-2331-2332-2333-2334-2335-2336-2337-2338-2339-2340-2341-2342-2343-2344-2345-2346-2347-2348-2349-2350-2351-2352-2353-2354-2355-2356-2357-2358-2359-2360-2361-2362-2363-2364-2365-2366-2367-2

**TABLE No. 5 Continued.**

[illegible]

Summary.  
Totals and Averages

[illegible]

inches; of these 7 died, 6 were discharged not improved, 15 improved, 3 arrested or cured; one of this series being under treatment less than 30 days.

TABLE 6.  
32 CASES HAVING 2 INCHES  
EXPANSION

[illegible]

TABLE NO. 7. Includes 58 cases, having between 1 and 2 inches of expansion; of these 24 died, 14 were discharged not improved, 13 were improved, 5 arrested or cured, and 2 were under treatment for less than 30 days. Two fatal cases of this series were also under treatment for less than 30 days.



TABLE 9.  
15 CASES HAVING LESS THAN 1 INCH  
EXPANSION

Rating	Age	History	In. expanding cause	Loss of weight	Respiratory, per minute	Pulse, per minute	Amount of sputum (mouth)	Tubercle bacilli	Other	Height, inches	Dyspnea	Chest pains	Hemoptyses	Stage on admission	Stage on discharge	Result	Stay at observation (months)	Lung un-involved (date)	Lung re-involved (date)
H 11	24	21	M 1	-	+	+	+	+	+	+	+	+	+	+	+	+	3	5	2
H 12	06	-	M	+	0	0	0	+	-	1	D	N	N	N	N	N			
H 13	01	21	M 5	+	+	0	0	-	-	2	N	1	6	-	-	-			
H 14	06	21	M 6	-	2	0	0	0	0	0	0	0	0	0	0	0	2	1	6
H 15	06	21	M 7	-	3	+	+	+	+	0	+	+	+	+	+	+	1	7	2
H 16	06	21	M 8	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 17	06	21	M 9	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 18	06	21	M 10	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 19	06	21	M 11	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 20	06	21	M 12	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 21	06	21	M 13	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 22	06	21	M 14	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 23	06	21	M 15	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 24	06	21	M 16	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 25	06	21	M 17	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 26	06	21	M 18	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 27	06	21	M 19	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 28	06	21	M 20	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 29	06	21	M 21	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 30	06	21	M 22	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 31	06	21	M 23	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 32	06	21	M 24	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 33	06	21	M 25	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 34	06	21	M 26	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 35	06	21	M 27	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 36	06	21	M 28	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 37	06	21	M 29	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 38	06	21	M 30	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 39	06	21	M 31	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 40	06	21	M 32	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 41	06	21	M 33	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 42	06	21	M 34	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 43	06	21	M 35	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 44	06	21	M 36	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 45	06	21	M 37	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 46	06	21	M 38	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 47	06	21	M 39	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 48	06	21	M 40	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 49	06	21	M 41	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 50	06	21	M 42	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 51	06	21	M 43	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 52	06	21	M 44	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 53	06	21	M 45	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 54	06	21	M 46	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 55	06	21	M 47	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 56	06	21	M 48	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 57	06	21	M 49	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 58	06	21	M 50	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 59	06	21	M 51	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 60	06	21	M 52	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 61	06	21	M 53	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 62	06	21	M 54	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 63	06	21	M 55	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 64	06	21	M 56	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 65	06	21	M 57	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 66	06	21	M 58	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 67	06	21	M 59	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 68	06	21	M 60	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 69	06	21	M 61	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 70	06	21	M 62	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 71	06	21	M 63	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 72	06	21	M 64	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 73	06	21	M 65	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 74	06	21	M 66	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 75	06	21	M 67	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 76	06	21	M 68	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 77	06	21	M 69	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 78	06	21	M 70	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 79	06	21	M 71	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 80	06	21	M 72	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 81	06	21	M 73	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 82	06	21	M 74	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 83	06	21	M 75	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 84	06	21	M 76	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 85	06	21	M 77	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 86	06	21	M 78	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 87	06	21	M 79	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 88	06	21	M 80	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 89	06	21	M 81	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 90	06	21	M 82	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 91	06	21	M 83	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 92	06	21	M 84	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 93	06	21	M 85	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 94	06	21	M 86	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 95	06	21	M 87	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 96	06	21	M 88	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 97	06	21	M 89	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 98	06	21	M 90	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 99	06	21	M 91	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 100	06	21	M 92	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 101	06	21	M 93	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 102	06	21	M 94	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 103	06	21	M 95	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 104	06	21	M 96	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 105	06	21	M 97	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 106	06	21	M 98	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 107	06	21	M 99	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 108	06	21	M 100	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 109	06	21	M 101	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 110	06	21	M 102	-	3	+	+	+	+	+	+	+	+	+	+	+	1	7	2
H 111	06	21																	

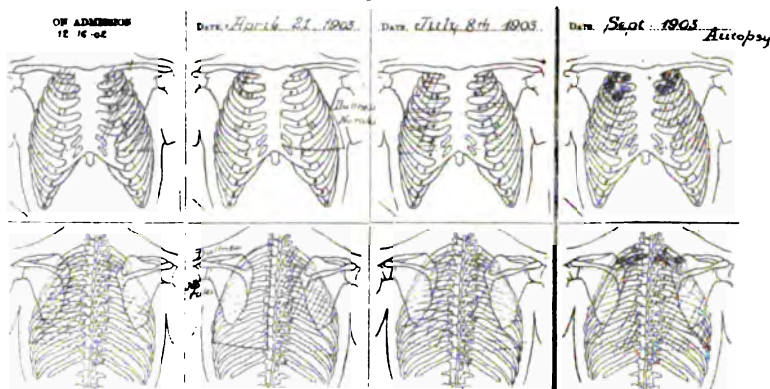
muco-puru. Tubercle bacilli, negative; Fever, Night sweats, Dyspnoea. Chest pains, (pleuritic), Nose and throat, chr. rhinitis.

Symptoms on admission, Dec. 16, 1902: Appetite, good. Sleep, good. Cough, slight. Sputum, slight m.p. Tubercle bacilli, numerous, aptly pure. Hemorrhages, blood-streaked sputum. Chest pains (pleuritic), yes, right side. Hæmoglobin, per cent, 70%–80%.

Symptoms on subsequent examinations, Feb. 19, 1903: Appetite, fair. Sleep, good. Cough, slight. Sputum, slight. Tubercle bacilli, few found. Heart, action rapid.

Symptoms on subsequent examinations, April 21, 1903: Appetite, fair. Sleep, good. Cough, slight. Sputum, slight m.p. Tubercle bacilli, few scattered. Heart, rapid.

Symptoms on subsequent examinations, July 8, 1903: Sputum,  $\frac{3}{4}$  pint in 24 hours. Tubercle bacilli, few, long and slim.



On discharge Sept. 18, 1903. Had all symptoms of meningeal affection. Mental condition dull, almost comatose. Complains of constant pain in frontal region. Kernig's sign well marked. No tenderness over skull perceptible.

**Physical examination:** General condition on admission, Dec. 16, 1902: Nourishment, fairly good. Weight, 141. Chest—Inspection: Shape, both clavicles slightly prominent. Left side of chest retracted. Palpation: Mobility, expansion nearly all on right side. Mensuration: Both, exp. 35, insp. 36 $\frac{1}{2}$ . Expansion, 1 $\frac{1}{4}$ ", almost entirely on right side. Percussion: Left chest dull from apex to base, front and back. Auscultation: Right, ant. medium sized moist rales in apex. Post. same in apex and interscapular space. Left, Retraction and dullness probably from thickened pleura. Breathing is very shallow.

General condition April 21, 1903: Nourishment, fair. Weight, 144. Mensuration: Left chest, left side lags. Percussion: Same as last exam. Auscultation: Right, shows active condition. Crackling rales heard to inf.

angle of scapula, posteriorly. Left, occasional rales. Tied down by thickened pleura.

General condition July 8, 1903: Nourishment, fair. Weight, 138. Auscultation: Same areas of involvement, but very few rales over either lung.

#### CASE II.

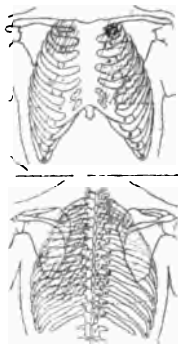
Name, S. Nilson: rating. able seaman; nativity, Sweden; age 33: date of admission, Feb. 21, 1903: stage third; date of discharge, March 3, 1903: result death. Personal history: disease favoring tuberculosis, contracted "cold" en route to Alaska.

Symptoms before admission: Night sweats. Chest pains, (pleuritic) 4 or 5 years ago.

Symptoms on admission, Feb. 23, 1903: Appetite, fair. Sleep, good. Cough, in evening. Sputum, muco-pur. Tubercle bacilli, present.

**Physical examination:** General condition on admission: Nourishment poor; Pulse, 124. Respiration, 24. Chest, poor. Inspection: Shape, left chest retracted below nipple. Left chest lags. Mobility, left scapula somewhat winged. Palpation: Mobility, a fremitus is felt over left chest on insp. and exp. Vocal fremitus, a bubbling râle fremitus felt on speaking over l. lung. Mensuration: Chest, exp. 89.5, insp. 93.5. Percussion: Left chest lags. Left lung comp. dull ant. from apex to 5th rib and post. from apex to inf. angle of scapula. Auscultation: Bronchical-breathing and a few clicks in right apex. Left lung bronch. breathing in apex to 3rd rib ant. and upper inter-scapular space post. Crackling rales and clicks in small numbers from apex to base, ant. and post.

ON ADMISSION



#### CASE III.

Name, John W. Spencer: rating, 2nd officer; nativity, Calif: age 29: date of admission, May 30, 1903: stage 2nd(?), family history, negative. Date of discharge, April 5, 1903: result, apparently cured. Personal history: habits, alcohol and tobacco.

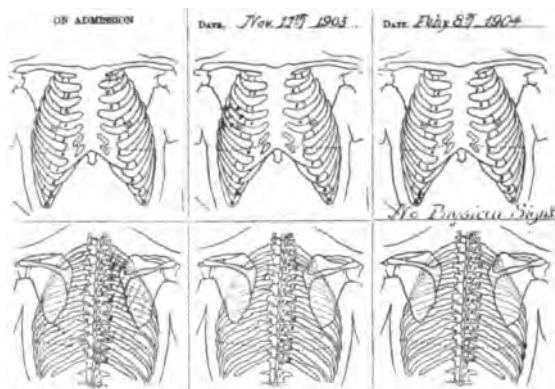
Symptoms, before admission: Appetite, good. Sleep, good. Cough 1½ years. Sputum, 1½ years. Tubercle bacilli, none found. Other organisms, many others found. Fever, daily evening rise for some time. Night sweats, severe 6 months ago. Hemorrhages, streaked sputum 1 mo. ago. Chest pain, none; Hæmoglobin, per-cent, eighty. Complications and tuberculosis of other organs: Genito-urinary, gonorrhea 2 years ago. Heart, rapid, regular. Nose and throat, diphtheria when a child. Condition as compared with last examination: Has coughed almost continually for a year: spat blood on April 30th, 1903: raises considerable sputum in the mornings.

Symptoms, on admission, exam. June 2nd, 1903: Tubercle bacilli, in moderate numbers. Dyspnoea, some on arrival. Hæmoglobin, per cent.,

eighty. Complication and tuberculosis of other organs: Heart, apparently normal. Nose and Throat, rhinitis very noticeable. Condition as compared with last examination: Is greatly below normal weight. Has troublesome catarrh. Teeth bad.

Symptoms, Nov. 11, 1903: Appetite, good. Sleep, good. Cough, slight. Sputum, slight muco-pur. Tubercle bacilli, none found. Hæmogoblin, per cent. eighty. Complications and tuberculosis of other organs: Gastro-intestinal, peri-anal abscess, with discharge containing tubercle bacilli. Heart, apparently normal. Condition as compared with last examination: Patient feels well, eats and sleeps well.

Symptoms, Feb'y 8th 1904: Cough, slight. Sputum, sero-purulent. Tubercle bacilli, none found in four trials. Hæmoglobin, 100%. Complications and tuberculosis of other organs: Fistula cured. Heart, apparently normal.



Symptoms, on discharge, April 5, 1904: none; Hæmoglobin, 100%.

*Physical examination:* General condition on admission: Nourishment fair. Weight, 138 lbs. Pulse, 99 per min. Respiration, 21 per min. Chest—inspection: Lower 6 dorsal spines more prominent than others. Shape, apices sunken. Palpation negative. Mensuration: Chest, exp. 80.3 c.m.: insp. 88.7 c.m.: exp. 8.4 c.m. Percussion: Right, comp. dull ant. from apex to 3d i.c.s. and post. from apex to near inf. angle of scapula. Left, apex is hyporesonant. Auscultation: Right, bronchial breathing and few moist clicks in Apex: ant. and post. musical rales all over lung. Left, roughened breathing, approaching bronchial in apex, with fine musical rales upon deep insp.

General condition, Nov. 11th, 1903: Nourishment, good. Weight, 154 lbs. Chest—Inspection: Well formed, well nourished and muscled. Mobility good—apparently same for both sides. Palpation: Mobility, good. Vocal fremitus, negative. Mensuration: Right chest, rest. 44, exp. 43, insp. 47.5. Left chest, rest. 44, exp. 43, insp. 46. Percussion: negative.



## ALTITUDE A

Auscultation: Breathing vesicular axilla, where slight bronchial element post.

General condition Feb. 8th, 1895, negative. Palpation: Mobility, negative. 45, exp. 42, insp. 47. Left chest, negative. Auscultation: Negative.

General condition, April 5th, 1895. Weight, 153 lbs.

CON

Concluding. Gentlemen, the merits of the arid southwest as a treatment of tuberculosis, to minimize sending of consumptive to the region. Cases otherwise eligible for treatment have their vital capacity fit subjects for residence in high altitude with profit to the lower altitudes, remembering that any desired altitude level to localities which are better.

I wish to express my appreciation in preparing the statistics in the Surgeon Roberts and Archibald.

DIS

DON. DAVID MATTO, of Peru, has written in the French language, which, unfortunately, I am unable to report.

SURGEON HENRY G. BEYER: I have read of this paper, but the remarks of the treatment of tuberculosis, as mentioned, taking patients gradually to the Andes is a very important point of patients is concerned. I am not good, either to a well man or much consumption. This certainly should be the case in our own latitudes; even at the air rarefaction is distinctly noted. I noted what Dr. Matto said in regard to blood corpuscles. We have noted almost as many blood corpuscles in ascending a high altitude as yet plain whether it is the

that causes such a revolution of the circulation as to call into activity corpuscles that lay quiescent in some organs, but the fact has been observed everywhere that a very decided increase of red blood corpuscles occurs.

SURGEON GENERAL WALTER WYMAN, P.H.&M.H.S.: I was unfortunate enough not to be able to hear all of the paper, but by the remarks I judge that the subject of low or high altitude has been one that has been under very serious discussion and consideration, and that a sudden ascent of patients of even 6000 feet may be inadvisable in some cases. Most of us know of instances in the earlier days in the West before the railroads were built when men were said to have been cured of tuberculosis by simply crossing the plains in the old fashioned wagon outfit. In that way they ascended very gradually. At the same time they had the outdoor life, and it has been under serious consideration, and is yet, whether we could not gain some good scientific deductions from the experiment, by starting, as it were, a peripatetic or ambulatory service, fitting out a wagon train and sending patients out along the old Santa Fe trail to our sanatorium in New Mexico. I would be glad to have from any gentleman listening to me any suggestions he may have to make in regard to the matter. I seriously contemplate making that experiment, selecting the cases to make the trial, having an organization effected and having the party camp on the trail. In one respect it would be very advantageous because they would have an object in view, and by the time the journey ended they would be glad to get to the sanatorium, and I believe the mental effect would be good. Now we send them there in first class passenger coaches and when they arrive there they are not fully appreciative of what they find. I do not mean to say that they are not appreciative, but not as much so as if they would arrive by a long journey overland. I throw out that suggestion in the hope of inviting some discussion of the project.

SURGEON H. G. BEYER, U.S.N.: I think the suggestion of Surgeon General Wyman is an excellent one. I think in most of our sanitariums tuberculosis patients suffer from ennui. The journey and surroundings prove rather a setback, and I think the peripatetic proposition advanced by the General would relieve that and would be a very powerful aid in the treatment, and at the same time it would give them occupation which would not allow ennui to take possession of them. The slight change of climate involved in those movements would adapt them by degrees to changing conditions. I hope the General will put his idea into execution at once.

## Contemporary Comment.

### RUSSIAN CONDITIONS IN MANCHURIA.

A CORRESPONDENT of the London *Times* deals with the Russian medical organization in Manchuria, of which he gives a very depressing account. He estimates that the total number of sick and wounded down to the time of the great action on the Sha-ho at 150,000, or about 30 per cent. of the total force in Manchuria. He states that of the 32,000 sick and wounded registered at the Central Board in Kharbin from June 15th to August 15th about one-fifth were wounded. During the first six months of the war the most common diseases were dysentery of a mild type and rheumatic fever. He hints that a good many men who were but little, if at all ill, contrived to be sent to the base hospitals in order to obtain two or three weeks' rest and better food. Several severe outbreaks of dysentery occurred among the younger soldiers of certain regiments, but their illness was generally attributed to the drinking of river water; preventive measures were prescribed by army orders, but the regimental medical officers took no trouble to see that they were carried out. After the month of July, typhus—by which we understand typhoid fever—increased rapidly, and caused much sickness and disability. Preparations for treating the sick and wounded had been made on a very large scale, not only by the War Office but by the Russian Red Cross Society and by the Zemstvos or county councils; in addition twenty-four hospital trains, most of them well, and some of them luxuriously equipped, were provided by private generosity, and were a great boon wherever available. Owing to the large number of sick and wounded the hospital accommodations were often inadequate, and this evil was intensified by imperfect organization and a

failure to provide an adequate number of beds at places where they were most wanted. The military medical staff of the Russian army is very insufficiently paid and is numerically quite incapable of grappling with the present emergency; in consequence a large number of civilian practitioners mostly of Jewish extraction, have been called upon to proceed to Manchuria. This improvised medical staff is said to have worked on the whole exceedingly well under very great disadvantages; for not only have the hospitals been overcrowded and the food supply frequently insufficient, but necessary dressings even have been wanting. The practice of issuing first aid dressings to the soldier customary in modern times, has not been followed systematically in the field, although an immense stock of such packets had been provided by the authorities.

#### THE JAPANESE ARMY LITTER.

THE *British Medical Journal* remarks that the poles of the Japanese Army litter are of bamboo, reducing the weight of the complete apparatus to twelve pounds, and



The Japanese Army Litter, Folded and Open.

that it is supplied with a cover, and with folding legs, and hinged parts so as to pack closely for carrying empty as shown in the cut.

# Medico-Military Index.

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**Port (J.)** [School of army bandaging: Instruction in the extempore preparation of apparatus for transportation of the severely wounded and for treatment of suppurating fractures.] Stuttg., 1904, F. Enke, 62 p. 8°.

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**Kimmle.** [Military surgeons and physicians in wars during the period 1848-68.] *Veröffentl. a. d. Geb. d. Mil.-San.-Wes.* Berl., 1904, Hft. xxiv, 1: 12 part, 19 pl.

**Kupp (V. P.)** Two years in the military [hospital during the Chinese war of 1902. *Voyenno-med. J.*, St. Peterb., 1904, I med. spec. pt., 843-866.

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**Nisbet (W. B.)** Some surgical experiences during the South African war. (Abstr.) *Australas. M. Gaz.*, Sydney, 1903, xxii, 550-556.

**Pascale (A.)** [Transitory amaurosis from the detonation of firearms.] *Gior. med. d. r. esercito*, Roma, 1904, liii, 81-87.

**Schlayer.** [Experiences with mounting and use of Röntgen apparatus in the China expedition.] *Deutsche mil. arztl. Ztschr.*, Berl., 1904, xxxiii, 171-176.

**Shulgin (K. Y.)** [Surgical activity in the brigade hospital of the Separate Corps of Border-Guards (Apr. 1, 1901 to Apr. 1, 1903.)] *Voyenno-med. J.*, St. Petersburg., 1903, iii, med. pt., 427-447.

**Teodorovits (M.)** [The modes of employment of bandages for the infantry, in military sanitary service.] *Honvédorvos*, Budapest, 1904, xvii, 1: 9.



**BRIGADIER GENERAL CHARLES SUTHERLAND,  
SURGEON GENERAL, U. S. ARMY.—1890-1893.**

## Editorial Expression.

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### The Surgeon Generals of the United States Army.

#### XVII. BRIGADIER GENERAL CHARLES SUTHERLAND, SURGEON GENERAL OF THE UNITED STATES ARMY.—1890-1893.

**G**ENERAL interest centered about the President's action with regard to the succession to Surgeon General Baxter, but President Harrison decided to follow the precedent established in the Baxter case and promote the senior Colonel in the Medical Department, Colonel Charles Sutherland.

Immediately junior to him were a number of able and experienced officers among whom it would have been exceedingly difficult to make a selection. Chief among these was Lieutenant Colonel Joseph R. Smith, who had served with the highest credit as Assistant Surgeon General and as Acting Surgeon General, during the Civil War and in many important positions throughout the intervening years. Colonel Charles Page, as titular Assistant Surgeon General, had a reasonable claim for promotion; and the merits of many others might well have been recognized had not the Executive determined to decide the question upon the basis of seniority.

General Sutherland was born in Philadelphia on May 10, 1831 and was the son of the Honorable Joel Barlow Sutherland, a physician, soldier, statesman and jurist of the Keystone state, and the first president of the Society of the War of 1812, of which General Sutherland was himself at one time the Historian. Young Charles received the best educational advantages afforded by the private schools of Philadelphia and completed his student life at Jefferson Medical College where the degree of M.D. was conferred upon him in 1849.

He was commissioned as an Assistant Surgeon in the Army August 5, 1852, after ten months service as an Acting Assistant Surgeon under a contract tendered him after passing the entrance examination for admission to the Medical Corps. His earliest military experience was at Fort Monroe which was followed by a short term at Jefferson Barracks rendered especially interesting to the young physician by an epidemic of cholera which prevailed among the troops. He then went into the field with a military exploring party which located the site of Fort Riley in Kansas and shortened the overland trail to Santa Fe, New Mexico.

He was then transferred to the Department of New Mexico where he served for five years with station from time to time at Forts Webster, Fillmore, Craig, Stanton and Santa Fe, and saw much service against Apache and Comanche Indians. After a year in the east, at Fort Moultrie, S. C. and on leave, he was ordered to the Department of Texas where he remained, serving meanwhile at Forts Davis and Duncan, until Texas seceded from the Union when he escaped capture by the Confederate forces and left the state with artillery and infantry troops for New York.

Upon his arrival in the North he reported at the Headquarters of the Army and a week later was ordered by General Scott on a secret expedition to Fort Pickens and Santa Rosa Island, Florida. The troops composing this expedition were among the first to take an active part in the War of the Rebellion, sailing from New York and arriving at their destination prior to the first call for volunteers issued by President Lincoln. He remained at Fort Pickens a year and during that time participated in two bombardments between the United States troops and the enemy on the mainland, and in an engagement between United States Volunteers and Confederates near his hospital, his conduct receiving special commendation from General Brown on each occasion.

On April 16, 1862, he was promoted to the grade of Major and assigned to Fort Warren, Mass., then used as a prison in which several hundred Confederate officers were confined and guarded by a regiment of volunteers. In the summer he was ordered to report to General Halleck at Corinth, Mississippi, and



assigned to duty as Medical Purveyor for the armies concentrated near that center of military operations. Later he located extensive medical supply depots at Columbus, Kentucky, where he provided for the medical necessities of two hundred thousand men, the estimated strength of General Halleck's command.

He then organized a second large supply depot at Memphis, Tenn. Here he fitted out nine general hospitals, with a capacity of three thousand beds, for the disabled among the forces on the Mississippi, and assisted in equipping a floating hospital of over eight hundred beds for the use of Grant's Army at Milliken's Bend near Vicksburg.

He was attached to the headquarters of General U. S. Grant where he served as Assistant Medical Director and also as Inspector of Camps and Transports of the Army of the Tennessee until the surrender of Vicksburg in July 1863. He participated in the battles of Jackson and Champion Hills and assisted in locating the field hospitals established after those engagements. During the siege of Vicksburg he was actively engaged in examining camps, transferring the wounded to transports for northern hospitals and in keeping his forces well supplied with medicines and hospital stores. Referring to this period in his memoirs, General Grant says that: "Troops could scarcely find dry ground on which to pitch tents. Malarial fever broke out among the men. Measles and small-pox also attacked them. The hospital arrangements and medical attendance were so perfect, however, that the loss of life was much less than might have been expected."

After the fall of Vicksburg, he was appointed Medical Director of the Department of Virginia and North Carolina under General Foster, with the supervision of five large general hospitals in addition to the troops in the field and later Medical Director of Hospitals and Parole camp at Annapolis, Md.

In the spring of 1864, Major Sutherland was detailed by the Secretary of War as Medical Purveyor for the Army of the Potomac and the hospitals in and about Washington with station in that city. The Army of the Potomac then included 150,000 men and the twenty general hospitals supplied had a capacity of

over 30,000 patients. This duty lasted until the close of the war, during which time spacious buildings were occupied by the constantly in- and out-flowing stream of supplies handled by a large force of workmen, and over \$4,000,000 was disbursed without loss or difficulty.

When the army was reorganized at the close of the Rebellion, in recognition of his distinguished services, he was without solicitation recommended by Surgeon General Barnes, with the hearty endorsement of General Grant, to be one of the medical purveyors with the rank of Lieutenant Colonel then established and on September 21, 1866 he accepted that commission. He was stationed for several years at the Washington and the New York Medical Purveying Depots, meanwhile receiving on June 26, 1876, promotion as Surgeon with the rank of Colonel. He then served as Medical Director of the Division of the Pacific from 1879 to 1884 and of the Division of the Atlantic until his appointment as Surgeon General of the Army. December 23, 1890.

General Sutherland was a man of magnificent proportions, standing over six feet two inches in his bare feet. He had a fine open face, with a strikingly military cast. He possessed a most amiable disposition and was a delightful companion as the writer learned during the three years in which he served with him at Governor's Island from 1887 to 1890, and where he had the pleasure of being the first officer of his Corps to congratulate him upon his promotion. His administration was conservative and progressive. He gave the Medical Department a new field equipment, but withdrew the personal equipment of surgical supplies which had hitherto been issued to each medical officer, making all officers dependent upon the Post Hospitals for these articles. Under his direction the Hospital Corps was developed, and a movement toward securing a new set of reports upon the hygiene of the army was inaugurated, the publication of which however was prevented by later orders. He was retired by reason of reaching the age limit, on May 29, 1893, and settled down in Washington where he died at his residence on Friday, May 10, 1895.

PRESIDENT ROOSEVELT ON ARMY MEDICAL  
REORGANIZATION.

**T**HE personal military experience of the President of the United States together with his profound knowledge of the needs of the soldier, lends particular weight to a message sent by him to Congress on January 9, 1905, in which he remarks:

"I have, in a former message, stated to the Congress my belief that our Army need not be large, but that it should, in every part be brought to the highest point of efficiency. The Secretary of War has called to my attention the fact that the act approved February 2, 1901, which accomplished so much to promote this result, failed to meet the needs of one staff department in which all of our people are peculiarly interested, and of which they have a right to demand a high degree of excellence. I refer to the Medical Department. Not only does a competent medical service, by safe-guarding the health of the Army contribute greatly to its power, but it gives to the families of the nation a guaranty that their fathers, brothers, and sons who are wounded in battle or sicken in the camp shall have not only skilled medical aid, but also that prompt and well-ordered attention to all their wants which can come only by an adequate and trained personnel.

"I am satisfied that the Medical Corps is much too small for the needs of the present Army and therefore very much too small for its successful expansion in time of war to meet the needs of an enlarged Army and in addition to furnish the volunteer service a certain number of officers trained in medical administration. A bill which, in the opinion of the Secretary of War, of the late Secretary of War and of the General Staff of the Army, supplies these deficiencies was introduced at the last session of Congress and is now before you. I am also advised that it meets the cordial approval of the medical profession of the country. It provides an organization which, when compared with that of other nations, does not seem to err on the side of excessive liberality, but which is believed to be sufficient. I earnestly recommend its passage by the present Congress. If the Medical Department is left as it is

no amount of wisdom or efficiency in its administration would prevent a complete breakdown in the event of a serious war.

"I transmit herewith a memorandum which has been prepared for me by the Surgeon General of the Army, and also the remarks of the former and of the present Secretary of War with reference to this bill.

"THEODORE ROOSEVELT."

The following are the documents transmitted by the President with his splendid endorsement of the proposed legislation:

WAR DEPARTMENT,  
OFFICE OF THE SURGEON GENERAL,  
*Washington, December 7, 1904.*

The fact that mortality from disease in armies in war time greatly exceeds that from losses in battle is well known. The noneffective rate from sickness is even more greatly in excess of that from wounds.

**Statement of the Surgeon General.** The British army in the Peninsula, in spite of the many bloody battles, lost three times as many men from disease as from wounds. The infant French Republic was saved at Valmy more by the paralysis of Prussian efficiency by ravage of disease than by that rather bloodless victory. General Scott in the Mexican war lost by disease one-third of his effective strength. The loss from disease in the civil war was more than double that from the casualties of battle. The military efficiency of newly raised armies is specially liable to be gravely compromised or even destroyed from this cause.

The three primary duties of the Medical Department are:

1. To preserve the effective strength of armies (military sanitation).
2. To care for the sick and wounded.
3. To conduct the administrative work of the department.

To carry out these objects requires a highly specialized and complex organization and a numerous trained personnel. Military sanitation is now recognized to be a well-marked specialty in medicine of which the average practitioner knows little more than he does of the methods of military medical administration. The second duty is that for which civilian physicians can be used to advantage, while the first and third must in the main be in the hands of trained medical officers in order to secure efficiency. The standard of what is regarded as a satisfactory degree of efficiency in all of these directions has been greatly raised in late years.

In the Spanish war the country was scandalized by a monthly death rate from disease which rose from 2.15 per thousand in July to 4.08 in August, but fell again to 2.45 in September. During the civil war a higher death rate from disease than the highest maximum above mentioned persist-

ed for many months, reaching in the spring of 1862 a maximum more than double it, without creating half as much popular clamor.

Nor would such occurrences be possible now in civilized warfare as for 600 wounded to lie for more than ten days on the battlefield, as happened after the second battle of Bull Run, on August 30, 1862, when many of the wounded died of starvation. That this was not one of the unavoidable horrors of war, but was, as stated by the Surgeon General in reporting these facts, due to defective medical organization is evidenced by the fact that after the organization of the ambulance service of Letterman such occurrences ceased in the Army of the Potomac. After the great battles of Fredericksburg, December 13, 1862, and Chancellorsville, May 2, 1863, for instance, although the army was defeated, the field was cleared of wounded without confusion or delay.

The public sentiment of the civilized world therefore demands better organization and higher efficiency for the medical department of armies than at any time heretofore. Other nations, including even so poor a nation as the Japanese, are willing to pay the cost of increased efficiency in the shape of a large and well organized medical service, and it is not to be believed that Congress or the American people will refuse for our Army what is demonstrated to be essential to avoid future failure and insure efficiency. For medical efficiency a certain number of trained medical officers is necessary to direct matters of military sanitation, and, in the words of Mr. Root, "to conduct the administration of the great and complicated medical service." The measure of this number is given by the Secretary of War in his report for this year, as follows (p. 25):

It is evident that a staff department which has a personnel insufficient to perform the duties required of it in time of peace can not be successfully expanded to meet the increased responsibilities of war. The commissioned personnel of the Medical Department is nearly 200 short of the number required to perform its work at present, and the deficiency has to be made good by the employment of civilian physicians under contract. This is an expensive and unsatisfactory expedient in time of peace, while in time of war it heavily handicaps the efficiency of the Department.

This principle was not recognized in the reorganization of the Army in 1901. The increase in the Medical Department at that time was so inadequate that the proportion of medical officers to the Army at large was not increased, but greatly diminished and was made considerably less than the proportion existing at the beginning of the Spanish war or the civil war—this in spite of the recommendation of the Dodge Commission that the regular corps be increased.

Instead of giving an advocate's discussion of the bill now before Congress I prefer to refer the President to the impartial opinion of the experts of the Third Division of the General Staff as given in their report on it made to the Chief of Staff, which is to be found on pages 6, 7 and 8 of the report of the Senate Military Committee. (Report No. 2420).

The attention of the President is especially asked to the following points:

The Army is today officered for a strength of 100,000 men except the Medical Department, which is only sufficient for 42,000.

An adequate increase in the Medical Corps was recommended by the Dodge Commission.

This bill offers in the words of Secretary Taft "a complete workable system."

With a less number than that asked for, the Medical Department can not perform the duties with which it is charged by Army Regulations in time of peace, or be successfully expanded to meet the increased labors and responsibilities of war.

With a less proportion in the higher grades it cannot attract properly qualified candidates to fill the vacancies created.

The Reserve Corps constitutes an eligible list of competent civil physicians who will reinforce the regular Medical Corps in time of war or other emergency.

The increase of cost is, when the enlargement is completed four years hence, only a little over four per cent above the present cost of the Medical Corps, while next year it will actually be diminished under this act.

The increase of efficiency is as 320 is to 450 or about 40 per cent.

This bill has received the rigid scrutiny of the General Staff and the approval of Secretary Root, of Secretary Taft, of the Military Committee of the Senate, and of the American Medical Association.

Respectfully submitted.

R. M. O'REILLY,  
Surgeon General.

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WAR DEPARTMENT,  
*Washington, January 30, 1904.*

I heartily approve this bill in principle. I consider that it will be greatly to the benefit of the service to abandon the employment of contract surgeons and substitute in their place regular commissioned officers. I do not think the number to which it is proposed to increase the Medical Corps is at all excessive. It seems to me that the presentation of the case by the Surgeon General in regard to the necessities of skilled administration of the medical service in time of war is conclusive. It will be easy in time of war to secure an adequate number of physicians competent to treat the sick and wounded, but it will be impossible to secure medical men competent to conduct the administration of the great and complicated medical service unless they are specially trained in time of peace. The lack of a sufficient number of such trained officers in the past has caused untold suffering and the sacrifice of many thousands of valuable lives. It is our pres-

ent duty to see to it that such a condition shall never exist again. I believe that that can be accomplished only by following the course which has now been indicated by the Surgeon General and approved by the General Staff.

Upon the single question of the relative proportion of majors, lieutenant colonels, and colonels which should properly be accorded to the Medical Corps, the Surgeon General wishes to ask reconsideration by the General Staff. That single question, with the assent of the Chief of Staff, will accordingly be relegated to the General Staff for further consideration. Upon all other questions I approve the bill in detail.

ILIHU ROOT,  
Secretary of War.

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WAR DEPARTMENT,  
*Washington, February 18, 1904*

SIR: I have the honor to transmit herewith a bill to increase the efficiency of the Medical Department of the United States Army, together with the approval by my predecessor, Secretary Root, of the bill in every part except as to the relative proportions of majors, lieutenant colonels and colonels which should properly be accorded to the Medical Corps.

The question was remitted to the General Staff for further consideration and has been returned with the recommendation that the number of colonels be limited to twelve, the lieutenant colonels to eighteen, with 110 majors and 300 captains and first lieutenants: whereas the recommendation of the Surgeon General is that the colonels number twenty, the lieutenant colonels twenty, majors 110, and captains and lieutenants 300.

It appears that the division of the General Staff to which the bill was referred approved the proportion of the colonels and lieutenant colonels as recommended by the Surgeon General, but that the War Department General Staff as a body, when the exact point was submitted to them, made the recommendation as above. General Chaffee was not present, I am informed at the meeting of the General Staff, and possibly did not have the advantage of all the statements which were made with reference to the proper number of medical officers for each tactical unit in the field. Certainly the evidence introduced by the Surgeon General shows that the number necessary for each tactical unit is considerably greater than that which must have been assumed by General Chaffee in the conclusion which he reached. Of course I must differ from the opinion of the General Staff and the distinguished chief of that body with great diffidence in view of the short time that I have been in the Department. I have, however, read the arguments carefully of the Surgeon General and the statement of the third division of the General Staff and also of the Chief of Staff, and I am bound to say that

it seems to me that the arguments of the Surgeon General substantially outweigh those advanced by the Chief of Staff. The Surgeon General's report shows a complete workable system which the amendment by the General Staff truncates and destroys the symmetry of. Then, too, the prospect of promotion which the increased number in the higher grades offers to those who enter the service seems to be absolutely essential to procuring good material for the Medical Corps. The increased expense in securing a proper medical education in modern days, as shown by the lengthening of the term of preparation from two to four years, and the great professional rewards in civil life make it highly important that there be offered a due prospect of promotion to young men of ability to induce them to enter the Corps.

In deference to the opinion of the General Staff, however, I have concluded to recommend a reduction in the number of colonels and an increase in the number of lieutenant colonels, so that the bill should provide for sixteen colonels and twenty-four lieutenant colonels, and this I do after a conference with the Surgeon General who is willing to accept the amendment.

I do not approve that amendment to the law which limits the examination of a lieutenant colonel, necessary to his promotion to a colonelcy, to an examination of his physical condition, his moral character and his past record in the service, and it seems to me that the examinations ought to be continued to the highest rank, except that of Surgeon General, which grade is filled, of course, only by selection. Such a requirement will have the effect of preventing the upper grades from being regarded as places of leisure and as not entailing the hard, enthusiastic work which is found in the lower ranks.

I have the honor to recommend the passage of the bill amended as suggested. I believe it to be of the utmost importance in securing a proper and efficient Medical Corps.

I accompany this letter with the bill and with the communications received by me from the Surgeon General, the Third Division of the General Staff and the Chief of Staff.

Very respectfully,

WM. H. TAFT,

Secretary of War.

The Chairman Committee on Military Affairs,  
House of Representatives.

[NOTE.—The bill as finally sent to Congress was altered so as to be in accord with the views of the Secretary of War as expressed above.]

In this connection the report by the General Staff upon the subject is valuable as showing the profound consideration given to the proposition before its submission to Congress.



[Memorandum Report No. 7 on the reorganization of the Medical Department.]

THIRD DIVISION GENERAL STAFF,  
*Washington, January 13, 1904.*

The Surgeon General submits a bill in tentative form "To increase the efficiency of the Medical Department of the United States Army," accompanied by memoranda explaining the character and object of the proposed legislation.

**Report of the General Staff.** The object of the reorganization proposed is to increase efficiency and provide the means for successful expansion in time of war or other emergency.

The recommendations made are:

1. That the organization shall consist of a Surgeon General, with rank of brigadier general; a Medical Corps; a Medical Reserve Corps; a Dental Corps; a Hospital Corps, and a Nurse Corps.
2. That the Medical Corps shall consist of 20 colonels, 20 lieutenant-colonels, 110 majors, and 300 captains and lieutenants.
3. That the existing cumbersome grade titles be dropped, and the titles colonel, Medical Corps; captain, Medical Corps, etc., be substituted.
4. That no officer of the Medical Corps shall be promoted, other than to the grade of Surgeon General, until he has passed a satisfactory examination.
5. That no officer of the Medical Corps shall be granted a second examination except in extraordinary cases and by special authority of the Secretary of War, and the recommendation includes, it is learned, the condition that there shall be no delay in any reexamination granted; that any officer of the Medical Corps who fails in physical examination and is found incapacitated for service by reason of physical disability contracted in line of duty, shall be retired with the rank to which his seniority entitled him to be promoted; that captains and lieutenants who fail to pass a satisfactory examination for promotion, other than physical, shall be honorably discharged from the Army with one year's pay; that majors and lieutenant colonels who fail in examination other than physical, shall be permanently debarred from promotion and the officer next in rank found qualified shall be promoted to the vacancy.
6. That first lieutenants, upon completion of three years' service, shall be promoted to the grade of captain if found qualified by examination.
7. The memoranda recommend in addition to the bill that twenty-five per cent of the increase proposed be made in each grade annually until the full number is reached.

The various recommendations are very fully and clearly considered in the memoranda accompanying the proposed bill, and will not be repeated in such detail as is there given.

Recommendation 1 involves the substitution of a reserve medical corps for the existing system of employing contract surgeons. The arguments presented in favor of such a change appear most convincing, and the change would unquestionably result in economy and efficiency, the object being to induce young medical graduates of good character and ability to qualify for a reserve corps by a few years' service with troops, and thus form a trained and tested reserve for time of war or other emergency.

The names of members of such reserve would be on the rolls of the War Department, and they would undoubtedly be impelled by patriotic motives to temporarily leave private practice for the public service upon the outbreak of war. The proposed reserve medical corps is quite similar to that provided in section 23 of the militia act, approved January 21, 1903, as a reserve body of persons qualified to hold commissions in any volunteer force which may hereafter be authorized under authority of Congress. All proper restrictions as to appointment and service seem to be provided. It will be noted that there is no expense attached to the medical reserve corps until it is called into actual service. The reference to the dental corps appears as a simple matter of wording, not affecting materially existing law. No change is suggested in existing organization of Hospital and Nurse Corps.

Recommendation 2 provides for an increase of the Medical Corps from 320 commissioned officers to 450 commissioned officers, and the employment in addition of 50 commissioned officers of the reserve corps. The proposed increase is more apparent than real: the number of medical officers now authorized by law, including contract surgeons, is greatly in excess of the 450 commissioned officers and 50 reserve corps officers proposed. The increase is in reality a substitution of 130 commissioned officers for that number of contract surgeons and the use of reserve corps officers if additional medical officers are required and provided for by Congressional appropriation. In 1898 177 medical officers were required for an Army of 25,000 men, and in addition to such number private physicians had at times to be employed. At that time there were ninety-three garrisoned posts. The Army has been increased fourfold, and the number of garrisoned posts, including Alaska and the Philippines, has increased to about 245.

While there may be anticipated a possible decrease in the number of medical officers required in the Philippines and a possible slight concentration and abandonment of a very few posts in the States, the latter will undoubtedly be offset by the increase in sea-coast fortifications and the attendant artillery posts. The number of medical officers employed at the present time is 497, of which 195 are contract surgeons. It does not seem probable that conditions will arise in the near future that will call for a less number of medical officers than are at present required. The arguments presented in the memoranda and other information secured relating to desirability of increasing the number of commissioned officers of the Medical Department organizing a reserve medical corps and abandoning the present system of

employing contract surgeons, appears to be full and convincing, and in view of the number of medical officers now found necessary and authorized, it does not appear that the number proposed, 450, is excessive.

The subdivision of grades is such as will bring the Medical Corps of the Army approximately on a par with the Medical Corps of the Navy and bring it in close relation, as regards prospective promotion to grade of field officer, with the Corps of Engineers, the only other army corps with which comparison can now be made. The field officers would constitute only one-third of the total number, which is not in any way excessive, and is the least percentage that will provide such promotion as is necessary to draw to the corps, or retain in the service, the most efficient young men. The percentage of field officers to total number in Medical Corps previous to 1901, was about thirty-eight. By the act of February 2, 1901, such percentage was reduced to twenty-five. In the statement presented it is shown that under present organization the larger portion can not expect to ever pass beyond the rank of major. The effect of the reduction in future prospects made by the act of February 2, 1901, has been to gradually reduce the number of admissions to Medical Corps from seventy-nine in 1901 to twenty-seven in 1903, and in spite of various concessions in standard of admission there still remain eighteen vacancies.

There have been eleven resignations from the corps since the passage of the act of 1901, while there was but one during the three years preceding. The organization of the Navy Medical Corps (with which the Army Medical Corps competes for new members) is far more advantageous to young men, and such fact is said to be used by the Navy Medical Corps to its advantage in the securing of young officers. The facts given, which are based on actual experience, appear to show conclusively that the change of organization provided by the act of February 2, 1901, had resulted and will continue to result in disadvantage to the Medical Corps of the Army, and that the inducements which can now be offered to young men as to future prospects will not draw to the corps or retain in the service the most efficient. A table submitted with the memoranda shows that the proposed change of organization will result in but slight, if any, additional cost to the United States.

The Surgeon General recommends that the division of field officers into grades be as follows: Twenty colonels, twenty lieutenant colonels, and one hundred and ten majors. Such organization is almost identical as to proportion with the organization of the Medical Corps of the Navy, with which it appears more proper to compare it than with other army corps, and it is believed the proposition recommended is just and necessary to secure and maintain an effective Medical Corps. A list of stations and duties submitted with statement shows the position in which the various grades proposed can be used properly and to advantage.

Recommendation 3 relates to titles of grades, and the change proposed appears in the interest of simplicity and is desirable.

Recommendation 4 provides for continuing examination for promotion through all the grades, and must result in increasing the efficiency of the Medical Corps.

Recommendation 5, so far as it relates to reexaminations, appears proper in the form presented, or in a substituted form, under consideration by the Surgeon General requiring action upon question of reexamination by a medical board and Surgeon General. The recommendation relating to retirement for disability incurred in line of duty is a proper one; the recommendation also provides for the discharge, with one year's pay, of first lieutenants and captains who fail to pass examination other than physical, and for the permanent debarment from promotion of majors and lieutenant colonels who fail on other than physical examination. In the matter of first lieutenants and captains the provision appears a proper one; also in case of majors and lieutenant colonels, in the light of the information given by the Surgeon General as to the character of examination proposed, and other matters pertaining to the proper duties of such field officers.

Recommendation 6 provides that first lieutenants, upon the completion of three years' service, if qualified by examination, shall be promoted to the grade of captain. This provision is the same as is provided for Navy Medical Corps and is the same as in the English service. The present provision is five years, which may have been proper at one time, but owing to great advance in the standard of medical knowledge, the curriculum has been extended to four years in addition to the time required for securing a collegiate education and a degree and the year of hospital experience required. With the three years limit but few, if any, would reach the captain's grade at a less age than 30 years and the average age would be materially higher.

Recommendation 7 is that the increase proposed in each grade be limited to twenty-five per cent annually until the full number is reached, which recommendation is approved.

The third division of the General Staff is of the opinion that the legislation proposed in the tentative form of bill submitted with the memoranda of the Surgeon General is fair and in the interest of the efficiency of the Medical Corps of the Army and recommends it for approval.

As has been stated in this report, it does not, in the opinion of the third division of the General Staff, appear probable that the number of medical officers required will ever be any less than at present, unless a future reduction of the Army is considered. Any material reduction of the Army would probably be accompanied by legislation providing for any resulting necessity for reduction in staff corps or departments. Any moderate reduction in the medical corps can be provided for by not filling vacancies as they occur. It will be noted the present reorganization contemplates the addition of thirty-two officers the first year, and the same number each succeeding year until the total is reached. But should it be considered advisable to reduce the proposed number of the permanent corps, and provide for additional medical attendance by the employment of more officers of the reserve corps than

is herein before considered, the question will arise as to the propriety of reducing proportionately the number of field officers proposed.

It is not believed any possible future reduction would materially reduce the number of responsible positions to which field officers could properly be assigned, such responsibility being, of course, the same whether the total number of medical officers is made up of a permanent force or of officers from the reserve, and if a reduction of the total is considered necessary, such reduction might well be made in the number of captains and lieutenants. If, however, such reduction of field officers is to be considered, the following figures are presented as preserving the ratio of thirty-three per cent of field officers, considering only permanent portion of force:

For a total permanent force of 400, one brigadier general, eighteen colonels, eighteen lieutenant colonels, ninety-nine majors, 264 captains and lieutenants.

For a total permanent force of 350, one brigadier general, sixteen colonels, sixteen lieutenant colonels, eighty-six majors, 232 captains and lieutenants.

No consideration has been given to the form of the bill, and should the recommendation herein made be approved it is understood the tentative form of bill will be referred to the first division of the General Staff for its action before the matter is submitted to Congress.

A proposed bill for increasing the efficiency of the Corps of Engineers has been under consideration in connection with the bill herein considered, and a report thereon has this date been submitted. It is suggested that if such report be also approved whatever legislation it is decided to recommend in these premises may most properly be combined in one bill.

A. MACKENZIE,

*Colonel, General Staff, Chief Third Division.*

(Through Brig. Gen. Tasker H. Bliss, assistant chief of staff.)

JANUARY 14, 1904.

Approved: This report was considered and adopted by the third division in full committee

TASKER H. BLISS,

*Brigadier-General U. S. Army, Assistant to Chief of Staff.*

The Bill passed the Senate on January 5th without change except the introduction of a clause providing that Lieutenants having prior service in the Volunteers or in the Medical Reserve, while they may have the benefit of that service in computing pay and allowances, shall be promoted only upon the completion of three years service in the grade of Lieutenant in the Medical Corps.

## News of the Services.

Surgeon A. R. Alfred, U.S.N., ordered from the Solace to the Naval Station, Cavite.

P. A. Surgeon J. W. Ames, P.H.&M.H.S., promoted Passed Assistant Surgeon, November 4, 1904.

Dr. Leonard P. Bell, U.S.A., sailed on the transport Thomas from San Francisco to Manila.

P. A. Surgeon W. L. Bell, U.S.N., granted three months sick leave.

Lieutenant Colonel Albert H. Briggs, N.G.N.Y., was honored on the twenty-fifth anniversary of his entrance into the service with the brevet of Lieutenant Colonel. The Buffalo press cordially applauds the well deserved recognition accorded to Colonel Briggs.

Lieutenant Carroll D. Buck, U.S.A., ordered to Fort Leavenworth, Kans.

P. A. Surgeon C. S. Butler, U.S.N., ordered from the Constellation to the Naval Hospital, San Juan, P. R.

Surgeon H. R. Carter, P.H.&M.H.S., detailed as delegate to the Pan-American Medical Congress.

P. A. Surgeon W. M. Carton, U.S.N., ordered home from the Naval Hospital, Yokohama.

Dr. Albion McD. Coffey, U.S.A., ordered from Joplin, Mo., to Fort Worden.

Major William B. Davis, U.S.A., ordered from Honolulu to the Philippines.

Dr. S. Chase de Krafft, U.S.A., ordered for duty with the Battalion of Philippine Scouts, St. Louis, Mo.

Major George D. Deshon, U.S.A., promoted to Major.

Lieutenant John R. Devereux, U.S.A., ordered from Fort Meade to Fort Logan.

Dr. Clarence F. Dickenson, U.S.A., arrived at San Francisco on the transport Sheridan, December 15, 1904.

A. A. Surgeon D. M. Echemendia, P.H.&M.H.S., died at Havana, Cuba, December 19, 1904.

Assistant Surgeon M. K. Elmer, U.S.N., ordered from the Hancock to the New York Naval Hospital for treatment.

Medical Director N. M. Ferebee, U.S.N., retired for disability.

Dr. Bruce Ffoulkes, U.S.A., granted one month's leave with a month's extension.

Major Henry C. Fisher, U.S.A., ordered to the Philippines, April 1st, 1905.

Dr. Charles E. Freeman, U.S.A., arrived at San Francisco on the transport Sheridan, December 15, 1904.

P. A. Surgeon L. D. Fricks, P.H. & M.H.S., ordered from La Guayra, Venezuela, to New York.

Lieutenant Charles C. Geer, U.S.A., retired for disability.

Assistant Surgeon A. J. Geiger, U.S.N., ordered to the Prairie.

Major William W. Gray, U.S.A., ordered to the Philippines, April 1st, 1905.

Dr. Samuel A. Greenwell, U.S.A., ordered to Fort Barrancas.

Surgeon W. B. Grove, U.S.N. placed on waiting orders from the Atlanta.

Surgeon A. C. Grunwell, U.S.N., ordered from the Dixie to the New York Naval Hospital for treatment.

Colonel John D. Hall, U.S.A., ordered home from the Philippines.

Dr. Morris J. Hansen, U.S.A., sailed on the transport Thomas from San Francisco to Manila.

Captain E. H. Hartnett, U.S.A., granted three months leave.

Dr. Melville A. Hays, U.S.A., ordered to Vancouver Barracks, Wash.

Major Frank J. Ives, U.S.A., ordered to the Philippines.

A. A. Surgeon W. H. Janney, U.S.N., ordered from the Marcellus to the Caesar.

Major William P. Kendall, U.S.A., ordered to the Philippines, March 1st, 1905.

P. A. Surgeon J. T. Kennedy, U.S.N., ordered to the naval station, Guantanamo, Cuba

Dr. Jesse W. Lazear, U.S.A. — Much military medical interest is attached to the recent unveiling of a tablet in the new clinical amphitheatre of the Johns Hopkins Hospital to Dr. Jesse W. Lazear, late Contract Surgeon U.S.A., who sacrificed his life to science in the investigation by experimentation upon his own person of the agency of the *Stegomyia fasciata*



mosquito in the transmission of yellow fever. A committee of Johns Hopkins alumni raised \$2,500.00 and expended a small portion of the amount upon the memorial here illustrated, devoting the remainder of the sum to the benefit of Dr. Lazear's children.

P. A. Surgeon R. E. Ledbetter, U.S.N., ordered from the Lancaster to the Dixie.

Dr. Robert Lemmon, U.S.A., ordered from Fort Dupont to Fort Terry for temporary duty and thence to Fort McKinley.

P. A. Surgeon L. L. Lumsden, P.H.&M.H.S., ordered from the New York Immigration Depot to Philadelphia.

A. A. Surgeon P. F. McMurdo, U.S.N., ordered from the League Island Navy Yard to the Baltimore Naval Recruiting Station.

Captain Charles E. Marrow, U.S.A., granted three months leave.

Lieutenant George W. Mathews, U.S.A., ordered for examination for promotion.

Surgeon V. C. B. Means, U.S.N., ordered to the Philadelphia Naval Hospital.

Major Edgar A. Mearns, U.S.A., granted thirty days leave.

Surgeon C. D. Norton, U.S.N., granted three months sick leave.

Major William O. Owen, U.S.A., ordered before a retiring board.

P. A. Surgeon J. E. Page, U.S.N., ordered to the Lancaster.

P. A. Surgeon J. H. Payne, U.S.N., ordered from the Marietta to waiting orders.

Assistant Surgeon T. N. Pease, U.S.N., ordered from the Hartford to the Columbia.

Surgeon J. C. Perry, P.H.&M.H.S., detailed as delegate to the Pan-American Medical Congress.

Assistant Surgeon C. P. Pierce, P.H.&M.H.S., detailed as delegate to the Pan-American Medical Congress.

Surgeon F. L. Pleadwell, U.S.N., ordered from the Naval Dispensary, Washington to the Naval Hospital, Yokohama.

P. A. Surgeon R. W. Plummer, U.S.N., detached from the Naval Hospital, San Juan, P. R., with a month's leave.

Lieutenant John J. Reilly, U.S.A., ordered from Jackson Barracks to Fort Bayard for treatment.

Lieutenant John J. Reilly, U.S.A., ordered to the Army and Navy General Hospital, Hot Springs, Ark. for treatment.

Dr. Hugo C. Rietz, U.S.A., returned to Fort Sheridan from leave.

P. A. Surgeon S. S. Rodman, U.S.N., ordered to the Pensacola.

P. A. Surgeon M. J. Rosenau, P.H.&M.H.S., delegate to represent the service at the annual meeting of the Mosquito Exterminating Convention and Society of American Bacteriologists.

Medical Director John W. Ross, U.S.N., retired upon reaching the age limit but retained on duty with the Isthmian Canal Commission.



Assistant Surgeon T. W. Salmon, P.H.&M.H.S., ordered from Philadelphia to the New York Immigration Depot.

P. A. Surgeon J. W. Schereschewsky, P.H.&M.H.S., promoted Passed Assistant Surgeon November 11, 1904.

A. A. Surgeon F. E. Sellers, U.S.N., ordered from Gloucester to the Franklin.

Major Paul Shillock, U.S.A., ordered to the Philippines, May 1st, 1905.

Lieutenant J. R. Shook, U.S.A., ordered to Fort Des Moines, Iowa.

Lieutenant Joseph F. Siler, U.S.A., ordered from Fort Logan to Fort Meade.

Brigadier General Charles Smart, U.S.A., retired on account of disability.

Surgeon Alexander C. Smith, P.H.&M.H.S., promoted Surgeon, December 17, 1904.

Dr. Frederick H. Sparrenberger, U.S.A., returned to Fort Mott from leave.

Captain Alexander N. Stark, U.S.A., ordered to the Philippines.

Surgeon John M. Steele, U.S.N., ordered from the Baltimore Naval Recruiting Station to the Colorado.

Captain Henry R. Stiles, U.S.A., ordered for examination for promotion.

Assistant Surgeon A. Stuart, U.S.N., ordered from the Naval Hospital, San Juan, P. R., to Washington for examination for promotion, and thence home on waiting orders.

Lieutenant Verge E. Sweazey, U.S.A., ordered to Washington General Hospital for treatment.

P. A. Surgeon John S. Taylor, U.S.N., ordered from the Relief to the Ohio.

Assistant Surgeon H. M. Tolfree, U.S.N., ordered to the Hancock.

Lieutenant Wilfrid Turnbull, U.S.A., ordered for examination for promotion.

Dr. George B. Tuttle, U.S.A., sailed on the transport Thomas from San Francisco to Manila.

A. A. Surgeon J. Tuttle, P.H.&M.H.S., granted one month's leave.

P. A. Surgeon R. H. von Emdorf, P.H.&M.H.S., ordered to quarantine duty in the Isthmian Canal Zone.

P. A. Surgeon C. W. Wille, P.H.&M.H.S., promoted Passed Assistant Surgeon, November 25, 1904.

Dr. Egerton T. Wilson, U.S.A., arrived at San Francisco on the transport Sheridan, December 15, 1904.

P. A. Surgeon R. L. Wilson, P.H.&M.H.S., promoted Passed Assistant Surgeon, November 1, 1904.

Major Francis A. Winter, U.S.A., ordered to the Philippines, March 1st, 1905.

Major Charles E. Woodruff, U.S.A., publishes in a recent number of

*American Medicine* an interesting piece of satire under the title of "The Maternal Impressions of a Military Surgeon."

Captain R. S. Woodson, U.S.A., ordered from Fort Clark to Fort McDowell.

Dr. Stephen Wythe, U.S.A., returned to San Francisco, Cal., from leave.

Lieutenant John D. Yost, U.S.A., ordered to Honolulu, Hawaii.

Assistant Surgeon R. M. Young, U.S.N. resignation accepted.

THE HAGUE CONGRESS, among other important questions, will deal with the question of hospital ships, a feature of especial interest to military surgeons.

**BLACKBALLED SURGEONS VINDICATED.**—A survival of mediaevalism appeared in the blackballing of seventeen officers of the Royal Army Medical Corps for election to membership in the Junior United Service Club of London a few weeks ago. This action excited great indignation throughout the Club membership, and at a general meeting, held a short time after, the vote was reversed and the medical officers promptly elected. The affair has created a great deal of discussion in English military circles and it is said that an army medical club is likely to be started in London as a result.

**DISEASE AND WOUNDS IN THE JAPANESE ARMY.**—The United Service Gazette says, "An interesting table has been published by the Japanese Naval Authorities, showing the casualties due to the war as compared with those due to normally operative causes. This table shows two things; first, that the number of casualties resulting from fighting is extremely small compared with the number from disease; and, secondly, that the fact of being engaged in an arduous campaign which has involved constant exposure and hard labor for many months, has not at all raised the proportion of sick. This table does not, however, include deaths in battle.

**THE ANNUAL REPORT OF THE SURGEON GENERAL OF THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE** of the United States, for the fiscal year 1904, makes a superb volume of 677 pages and gives a most interesting and valuable picture of the work of this progressive branch of our national medical services.

**THE ANNALS OF SURGERY** celebrates its twentieth anniversary by the issue of the finest single number which the writer has ever seen in medical journalism. The Military Surgeons extend to the editors and publishers cordial congratulations upon this worthy culmination of so many years of masterly effort and successful labor.

## Current Literature.

### INTERNATIONAL MILITARY MEDICAL STATISTICS.\*

**T**HIS pamphlet comprises a series of tables containing the medical statistics of the American Army according to the plan agreed upon by the International Commission for the Unification of the Medical Statistics of Armies, as finally determined at Madrid in 1903. The tables are nine in number and show (1) in absolute numbers, by departments, the mean strength of the command, the admissions to quarters, to hospital, and total admissions; the disposition of the sick, total, the number returned to duty, died, and otherwise disposed of, together with the total number of days of sickness. (2) The same data in ratios per 1,000, together with the days lost per soldier and per admission. (3) By arms of service, the mean strength, the total admissions, and those to hospital only, the total disposition, and the number returned to duty and died. (4) The same data by months. (5) For each of twenty-two of the larger garrisons, the mean strength, admissions to hospital, total admissions and deaths. (6) For each of the thirty-five diseases or disease groups agreed upon by the International Commission, the number remaining under treatment at the beginning and close of the current year, the admissions and dispositions for the year, the total sick days, and the average number of days per case. (7) The same data by arms of service. (8) The same data as the preceding by months. (9) Deaths by rank, by length of service, and by age. (10) The same data referred to discharges for physical disability. These tables uniformly computed throughout the armies of the world, will, in a few years, form the basis of an invaluable series of statistics, and we warmly welcome their inauguration.

\*The International Military Medical Statistics for the Year 1903, Supplement to the Annual Report of the Surgeon General of the Army for the year 1904, 4to; pp. 12, Washington, Government Printing Office, 1904.

## APPLETON'S MEDICAL DICTIONARY.\*

**T**HIS magnificent work of nearly two thousand pages is a fine picture of the wide field which the medical sciences cover at the beginning of the Twentieth Century, and is the result of an enormous amount of original investigation and extensive reading upon which the editor and his collaborators have been engaged for many years. It is noteworthy for the fullness with which its topics are considered and is destined to take a highly authoritative position in medical lexicography. It is especially handsomely printed, the words defined being given in a particularly clear and distinct typography, while the general text is also clearly brought out. The qualities of accuracy, convenience of arrangement, and comprehensiveness which the authors design to develop in the work are evident in every part of the book.

## VON BERGMANN'S SURGERY.†

**T**HE volumes of von Bergman's Surgery translated and edited under the supervision of Dr. William T. Bull of New York have come out with remarkable rapidity. The fourth volume of this magnificent work, is devoted to the surgery of the alimentary tract, including the oesophagus, the abdominal wall, the peritoneum, the stomach and intestines, hernia, the liver and biliary passages, the spleen and the pancreas. As would be expected this part of the work is fully up to date and the most advanced and progressive attitude is taken toward the treatment of diseases and injuries of the part under consideration. This volume is rather more fully illustrated than some of the others which adds materially to its serviceability.

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\***Appleton's Medical Dictionary.** An illustrated dictionary of medicine and allied subjects in which are given the derivation, accentuation and definition of terms used throughout the entire field of medical science. Edited by FRANK P. FOSTER, M.D. Imp. 8vo; pp. 1991. With numerous illustrations. New York and London, D. Appleton & Co., 1904.

†**A System of Practical Surgery.** By E. VON BERGMANN, P. VON BRUNS and J. VON MIKULICZ. Translated and edited by WILLIAM T. BULL and others. Volume 4. *Surgery of the alimentary tract.* 8vo; pp. 757 with numerous illustrations. New York and Philadelphia. Lea Brothers & Co. 1904.

The section on intestinal operation is particularly interesting, including as it does a full chapter profusely illustrated upon the affection now so well known under the name of appendicitis, written by Professor Mikulicz and Dr. Krausch.

#### ENLARGEMENT OF THE PROSTATE.\*

THE appearance of a third edition of Mr. Mansell Moullin's monograph on prostatic enlargement is significant of the importance of the subject as well as of the excellent and interesting manner in which the author has treated his subject. The work is, as is well known, a plea for surgical treatment and the author's further experience amply confirms the opinions expressed in his Hunterian lectures wherein they were originally announced.

#### SURGICAL ANATOMY.†

THIS little guide is a product of the Manchester Medical School and is designed to bring into convenient form surgical anatomical facts for reference by students with rather more attention to dental anatomy than is usually given.

#### BOSTON'S CLINICAL DIAGNOSIS.‡

THE rapid progress of clinical and laboratory diagnosis renders this handsome work peculiarly useful at the present time. It is an exceptionally complete, well rounded, comprehensive and explicit treatise upon the subjects comprised

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\**Enlargement of the Prostate. Its treatment and Radical Cure.* By C. MANSELL MOULLIN, M.D., F.R.C.S. 3rd edition. 8vo; pp. 204 with 3 plates. Philadelphia. P. Blakiston's Son & Co., 1904.

†*Handbook of Surgical Anatomy.* By G. A. WRIGHT, F.R.C.S. and C. H. PRESTON, F.R.C.S. 12mo. pp. 202. Philadelphia. Blakiston's Son & Co., 1904.

‡*A Text Book of Clinical Diagnosis by Laboratory Methods.* By L. NAPOLEON BOSTON, M.D. 8vo; pp. 547 with 320 illustrations many in colors. Philadelphia, New York and London. W. B. Saunders & Co., 1904.

in its field. The profuse illustrations add to and render definite the lucid and succinct text and it may be commended as the latest and most accurate contribution to the field of diagnosis.

#### TEXT BOOK OF MATERIA MEDICA.\*

**T**HIS handsome, convenient and comprehensive little book will take a position between the "Essentials" or "Quiz-Compends" and the complete treatises upon the subject. An interesting feature of the work is the introduction of laboratory exercises upon the most important agents which is of material importance in impressing the students with their pharmaceutical and therapeutic qualities. From the mechanical standpoint the book is of rare excellence.

#### PENROSE'S DISEASES OF WOMEN.†

**T**HE textbook of Dr. Penrose continues to appeal to a large audience in the profession. Its character as an authoritative statement presenting the best results of the author's extensive experience, its distinct and unencumbered text and its convenient size, render it serviceable both as a textbook for the student and a handbook of reference for the practitioner. This fifth edition has been thoroughly revised and completely brought down to date.

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\***A Text Book of Materia Medica.** Including Laboratory exercises in the Histologic and Chemic examinations of drugs. For Pharmaceutic and Medical Schools and for Home Study. By ROBERT A. HATCHER, Ph. G., M.D., and TORALD SOLLMANN, M.D., 12mo. 400 pages, illustrated! Philadelphia, New York, London. W. B. Saunders & Co., 1904.

†**Text Book of Diseases of Women.** By CHARLES B. PENROSE, M.D., Ph. D., formerly Professor of Gynecology in the University of Pennsylvania. *Fifth Edition, Thoroughly Revised.* Octavo 539 pages, with 221 illustrations. Philadelphia, New York, London. W. B. Saunders & Co., 1904.

# Original Memoirs.

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AUTHORS ALONE ARE RESPONSIBLE FOR THE OPINIONS  
EXPRESSED IN THEIR CONTRIBUTIONS.

## FIRST AID IN NAVAL WARFARE.

By JOHN CROPPER WISE, M.D.,

MEDICAL DIRECTOR IN THE UNITED STATES NAVY.

IN the "*Archives de Médecine Navale*," a journal published by order of the French Minister of Marine, Dr. Fontan, Mèdecin en Chef, gives us a detailed description of what he calls "*L'hôpital de combat*," as installed on the Russian ship *Cesarwitch*, when completed at the Naval Arsenals on the Seine in June 1903.

It can be said of this hospital that it is probably the most complete, permanent location for the succor of the wounded, ever carried into action, ashore or afloat, and its installation on a ship of war, reflects the highest credit upon the humanity and progress of the Russian naval authorities.

It is a matter of regret that this occasion will not permit of an extended notice of Dr. Fontan's description—but we must be permitted a few words in this connection.

In comparing the conditions existing in the French naval service, with those of the Russian navy, Fontan thus expresses himself :

"The more that science exacts light, space, sterilized water, and other apparatus for the care of the wounded, more the constructors of our formidable armored engines treat as a negligible quantity that part of the programme, moral and humane, which is called the organization of the 'service de santé' during battle." He adds; "It may be that the surgeons will be prevented rendering themselves useful during the combat, but they should

prepare the means to be, and if a torpede or shell destroy them without service rendered, they will have perished in doing their duty."

Alluding briefly to the forward hospital, it occupies the width of the ship, is provided with: 1. Ten beds, light, and without encumbrance. 2. Apartments for both shower, and closet. 3. Apartments for contagious diseases, cabin, two beds, (both closed), and disinfecting store. 4. Apartment "de visite" with bed and table for examinations and dressings--secretary, bureau, lavatory with hot and cold water, a steam sterilizer for instruments and linen. 5. Pharmacy opening on apartment "de visite" (or examination).

Every need has been considered; every detail practically and scientifically disposed of. The above described accommodations are for the sick. What Fontan calls the "battle hospital" is located aft, between two armored bridges or behind an armored partition--the floors and partitions are specially treated to prevent excess of temperature. Oil lamps are provided in case of accident to the electric lighting. The apartment is equipped with every modern appliance, necessary in major surgery. This splendid structure (the *Cesarwitch*) completed on the Seine in June 1903, was before the lapse of a year, to have a severe test of her fighting qualities, and the medical department was to be taxed to its utmost. Is it not a singular and sad truth that so little is reported in regard to the number and fate of the wounded? In these days we get no more details with telegraph and telephones lining every road, than we did, before these agencies were so utilized in war. Thus in regard to the great naval engagement following the sortie of the Russian fleet from Port Arthur August 10th last, we have had but meager account. The action was one where the usual obtained, and the results would be of great interest. The fighting lasted from early afternoon until darkness permitted the escape of the Russian squadron. The distance between the opposing forces varied between five and eight miles, and the killed and wounded on the *Cesarwitch* is placed at twenty-five per cent--large enough it is true, but not so large as has been predicted. One unusual feature in this action



was the distance of the opponents, the Japanese adopting these tactics to avoid ramming, and to this fact the comparatively small per cent in killed and wounded is due.

In the engagement off Tsu-Shima August 14th, the conditions were much the same as on that of August 10th. The action took place at long range and the percentage of casualties as reported by admiral Jessen of the cruiser Gromoboi is stated at twenty-five.

In the opinion of naval critics if fighting at long range, becomes established as a tactical principle, the emplacement of the great guns must be much higher than is the case at present, and what is of greater interest to the medical officer, we can believe that twenty-five per cent of casualties as shown in these engagements fairly represent the average, and is such that a well organized medical department should be able to render most important service. We shall await with interest a report from the *Cesarwitch*, so well prepared to care for her wounded—how they were handled in a ship provided with the "gouttiere auffert," and a railroad running into the hospital—the nature of the wounds, the mortality of the medical department during action, and the services it was enabled to render.

With this passing notice of current events, let us proceed to the inquiry indicated in the title of this paper, "First Aid in Naval Warfare."

If we consider the wide difference of opinion which exists among writers on this subject, the conclusion is inevitable, that we have not had sufficient experience, under modern conditions, to justify us in reaching ultimate conclusions.

It is not the purpose of the writer to consider the details of first-aid on ships of war, for they are much the same there, as any where else; it is the intention rather to discuss some major-propositions relating to this subject which to a very considerable degree are peculiar to Naval service.

Fortunately for a review of this matter, there have recently appeared articles relating to it, by officers of the English, French, and Spanish services, which are of great interest; among others we cite those of:—

DE FORGES (Medecin de 1er classe, de la Marine—*Archives de Medecine Navale*, November, 1903);

DON JUAN REDONDO (Primero-Medico de la Armada, *XIV Congreso Internacional medicina, Madrid, 1903*. Reported in the *Journal of the Association of Military Surgeons*).

DR. PHILIP RANDALL (*Journal of the Royal United Service Institution*).

We are led to believe that these writers speak from their own experience and for themselves, which is the position of the author of this article.

The important questions at issue are these:

1st—The location of dressing stations.

2nd—The station and duties of medical officers during an engagement.

3rd—Emergency dressing.

Redondo, in regard to dressing stations, writes "The planning of places suitable for the wounded, has been unjustifiably disregarded. Had we not by actual experience been convinced of the absolute necessity of suitable dressing stations, we should doubt it, seeing the profound indifference with which the subject is disregarded, by Naval constructors and other officers." The essential conditions of a dressing station he states as follows:

1st. It should be such a point as might be called strategic, that the wounded may be brought to it, without much difficulty.

2nd. It should be protected from the enemy's fire.

3rd. It should have direct communication of its own, with the deck and batteries.

Two dressing stations are recommended, one forward and another aft, though this necessitates separation of the personnel and materiel. The dressing stations are considered the proper post for the medical officers during battle. This writer cites the analogy between land and naval battles; as the service in the army is described as that of front and rear; firing line, and base hospitals, so in ships there are analogous lines of surgical assistance, which ought to be systematized and perfected.

In regard to the first aid package, this officer contends, "it is unquestionably of great use in land battles, but it has compar-

atively little value in warfare at sea, owing to the severe nature of the injuries which the men do not possess the knowledge to dress." Speaking of his service on the "Isla de Cuba" which became the flagship of Admiral Montojo at Manila Bay, when the *Reina Christina* was placed "hors de combat," this writer continues, "I established a first aid station in the engine room, and another on the orlop-deck, and supplied both with an abundance of dressing material, arranged in such manner that I thought it could be easily used by any one without the slightest knowledge of surgery, and what was the result? In spite of the fact that in both places men received wounds, which fortunately were of such a nature as to be most easily dressed, they remained untouched, until they reached the sick-bay, and awaited their turn."

De Forges of the French Naval service, from the standpoint of the medical officer of the cruiser *Pascal*, thus expresses his views. "There are '*no postes de blesses*' properly speaking (on the *Pascal*), by lack of space under the protective deck, and also on account of the great difficulties of access. What then will become of the wounded during the combat? They will be laid aside by their comrades, in such manner, as not to interfere with the fire of the guns or of those serving them, this in my opinion is all that can in reality be done."

In regard to the station of the medical officers, this is the position held by De Forges with great emphasis. "The surgeon and his attendants remain in the protective deck during the fire." He should take no risk during battle, but conserve his entire force to meet the great demand that comes to it, after the action. With equal emphasis it is stated that relief should be attended to solely by the medical officers.

In marked contrast to the French and Spanish conclusion, is that of Dr. Randall, of the English Naval service, "In the fighting line only first aid should be rendered the wounded, and for this purpose dressing stations should be established where possible, and convenient."

"The medical officer and his assistants should be free to move about the ship, as expeditiously as they can, and wherever they are most urgently needed, as for instance, a casemate wrecked by a shell."

Medical officers in their professional zeal and humanity, are prone to forget, that a ship of war is primarily a fighting machine, an instrument of destruction, not of conservation; naturally we will ask every concession, regardless that if granted, it will distinctly detract from purely military efficiency.

Two of the authorities cited are of the opinion that dressing stations should be planned and provided for when the ship is laid down; they contend that they should be invulnerable, and easily accessible, usually more than one in number, having direct communication of their own with the deck and batteries.

It is stated without fear of successful contradiction, that were the construction authorities to concede all we ask in this respect, there would be no consensus of opinion as to what we wanted, and where we wanted it. To combine all the essentials stated, is a most difficult matter. Redondo, serving on the *Isla de Cuba* at Manila, tells us he established a dressing station in the engine-room—we presume because it was protected by the armored belt and the coal-bunkers, but how did this locality fulfill his other essential, viz., accessibility? The hatches and ladders, communicating between the decks, are of the utmost importance for combatant service—they will not be surrendered to the Medical Department, for hoisting or lowering, even were such a thing desirable. At Manila, we had stout boards, in convenient hatchways, which were set edgewise and were thus out of the way, and when needed were laid flat upon the ladders and upon it as a slide, the stretchers bearing the injured were sent below.

The commanding officer of the *Baltimore* when asked before the engagement above cited, where the stations were to be established, answered, "Locate where you think best; keep out of the way of the combatants as much as possible, and yet be as near them as you can;" that is the place difficult to find, a place out of the way, but accessible. And is not the question pertinent, "Why do we ask this concession of free communication for the wound stations, if the Medical Department is to remain quiescent therein when under fire and no systematic transportation of the wounded is contemplated?" After an action the wounded take precedence and get anything they ask for.

The French and Spanish authorities deem it of the highest importance that the medical officers remain under cover during an action. "It is impracticable for the medical officer to leave his post, come on deck and go to whatever points men happen to be wounded." "*Le medecin, et ses infirmiers, se tiennent sous le pont cuirassé pendant le tir.*" The authorities (French and Spanish) who use these arguments contend, that the lives of the sanitary service are too valuable to risk under fire, in view of the immense responsibility devolving upon it after an engagement.

We are assured there are no medical officers of the American Navy who will be attracted or actuated by this sentiment—but rather believe, that all war is a risk and we must take our part in it. While proper prudence is incumbent on all officers, to put a Medical Department in a bomb-proof, while those it is intended to succor, lie in distress and unaided, is to deny the very object of its existence. And furthermore, what will be the effect on the morale? The writer in this connection is led to recall the contrast under which the two armies fought in the last Russo-Turkish campaign. The former had a well equipped sanitary service, which gathered the wounded, and gave them every care—the brave Turks on the other hand fell, knowing there was no surgeon or comrade to care for them, but that all depended on "Kismet" and the Prophet. This factor tended greatly to diminish the efficiency of the Turkish troops. Let those who advocate this immuring of the Medical Department in Naval warfare, remember the analogy cited between the Army and Navy, that we also have our firing line and base; is it conceded that the Medical Department of the Army will not be on the firing line? It is admitted that such views have recently been advanced by able medical officers, but the settlement of the question will be in accord with the sentiment of Senn, "When a soldier is struck down by a bullet, in the discharge of his duty, he is no longer a combatant, and has a claim upon humanity, which no nation can ignore." It is true also, that engagements between vessels acting singly will be the exception, and general engagements, the rule of the future, so that if the Medical Department suffers such losses as it did in the Spanish fleet at Manila (the Surgeon of the

flag-ship was wounded and the Assistant Surgeon killed), the injured will not need medical attention, a longer time, than one would expect in a scene of such demoralization, defeat and disaster.

Concerning the rendering of first aid to the injured in war, we are all aware that point has been recently discussed, pro and con; there is a formidable array of names against such procedure, among which we find those of Longmore and von Bergmann. While there can be little doubt that transportation beyond the firing line, must be the main objective with Military Surgeons, the instruction of the soldier, and sailor in first aid, and the resort to temporary, and emergent measures by the medical officer at the front, cannot cease to be recognized as a procedure well established in Military Surgery. Can we doubt this after reading Makins' experience in South Africa? It is contended that this principle applies with equal force to the wounded in Naval warfare.

Redondo is of the opinion that injuries in Naval warfare will be too grave and beyond the knowledge of the non-professional to heal; yet we are told in the same article, that those who applied at his dressing stations, in the action at Manila were of a "character to be easily dressed." It cannot be established that the gravely wounded in Naval warfare will be in such great excess as stated; we are well aware that splinters play a more important part than any other missile, in cases where men are hit by fragments of large projectiles, lacerations, and dismemberment, are so common that death is immediate.

At Manila a shell from the enemy struck a box of secondary ammunition on the main-deck of the *Baltimore*, causing it to explode, whereby nine men of the gun's crew were wounded, the most serious injury being a fracture of the tibia. Again when we consider the many contingencies of Naval warfare, expeditionary, and boat duty, large parties, separated from the ship, without a medical officer, can we think that those men should be ignorant of first aid? In the modern ship, however alert and active the medical officer may be, there are so many points that cannot be reached, should the wounded in such situation be

without the knowledge and means of aiding themselves—such for instance as the tops?

We must give our absolute preference to the views of the English writer on this subject. We cannot believe it a wise plan to insist that dressing stations, be built in ships under construction at arsenals, to prove themselves subject to some unseen but insuperable objection, when at sea or in action.

We believe the wounded in any sustained Naval action will be so great, that the whole number cannot expect the services of the Medical Department, but must be able to help themselves.

While officers of the Medical Department, in common with all others, will use proper care, it is not believed that the conditions of modern Naval warfare require, nor will the demands of humanity justify, their seclusion or inactivity during battle.

#### DISCUSSION.

THE CHAIRMAN, COLONEL G. STERLING RYERSON:—As this is an international question I should be very glad to hear the discussion participated in by foreign representatives.

DON JUAN REDONDO Y GODINO, Spanish Navy: Unfortunately I have not the command of language to make myself understood in the discussion of this very valuable paper, but I wish to thank Medical Director Wise for introducing me to the Association, and also for his very valuable contribution to the subject under consideration and which merits our earnest consideration. [Applause.]

SURGEON CHARLES FRANCIS STOKES, U.S.N.:—I have taken the stand for some time that in operations on shore the first aid must be rendered by a comrade, a nearby comrade. Wounds sustained in over ninety per cent. of cases on shore are inflicted by small bullets. They get well pretty generally under any intelligent plan of treatment. On the other hand, wounds encountered on board ship are wounds caused by shell fragments or splinters. They are generally extensive, jagged, contused wounds. They must be attended to *at once* or the chance for infection is unlimited. I have devised a first aid shell wound packet which can, in my opinion, be as easily applied by the men as the army first aid packet, and certainly such cases are more urgent than surgical cases in the field. As I have said before, I think the first aid should be administered by a comrade.

COLONEL HOFF: Is there any provision made for carrying this first aid packet by the sailorman?

SURGEON STOKES: My plan has been to make these packets on board ship, sterilize them there and have them hung up conveniently out of the way, but to have them accessible. For instance in a turret a man cannot be reached until the action is over, and in that case the packets would be hung up where they could be gotten at by the men instructed in their use.

# THE PRINCIPLES OF THE NEW AUSTRO-HUNGARIAN SANITARY REGULATIONS FOR WAR.

By DR. JOHANN STEINER.

STAFF SURGEON IN THE AUSTRO-HUNGARIAN ARMY.



**An Austro-Hungarian Sanitary Soldier.**

years work, succeeded in drawing up a set of modern regulations

**T**HE Austro-Hungarian regulations for sanitary service in war which have been in force hitherto date from the year 1879. Such important changes have been introduced in weapons of war, methods of warfare and medical science, that the directions laid down in the above regulations must be regarded as obsolete and in many cases utterly impracticable.

A number of medical officers\* and officers of the General Staff, detailed for the purpose by the War Office, have now, after almost six

\*Including the writer of this paper.



corresponding to the requirements of the military conditions of today.

It may, however, be mentioned that the new regulations are by no means ideal from the military surgeon's point of view. It has often been necessary to yield to irresistible claims of a military nature. Also in many cases, the finances at disposal only allowed of improvements, where a complete reorganization would have been advisable.

The result has been a compromise with all the faults inevitably attaching thereto. Still, the Austro-Hungarian army now possesses an excellent guide, in accordance with which sanitary service in the field can be properly developed. As this fact is doubtless of great interest to the medical officers of foreign armies, the main principles of the new Regulations may be summarized below.

In time of war the following persons are at the disposal of the sanitary service *with the troops*: military surgeons, sanitary attendants (*Sanitätsgehilfen*), orderlies (*Bandagenträger*), and stretcher-bearers (*Blessiertenträger*).

There are further a number of special *Mobile Sanitary Establishments* including Divisional and Brigade Sanitary Establishments (*Divisions und Brigadesanitätsanstalten*), Field Hospitals, Mobile Reserve Hospitals, Field Convalescent Houses (*Feldmarodenhäuser*), Hospital Trains, Hospital Ships, etc., in which medical officers, pharmacists, pay officers, a special hospital corps (*Sanitätsstruppe*) and transport soldiers serve.

The Medical Supply Field Depots, (*Sanitätsfelddepots*) under the orders of chief staff surgeons, see that used-up sanitary stores are replaced.

In connection with the mobile sanitary establishments there are *Stationary Sanitary Establishments* on the field of operations and at the base.

The *Voluntary Aid in War* consists partly of institutions attached to those appointed by the State, *c. g.*, the "Field Sanitary Columns of the Teutonic Order" (*Deutsch-Ordens Feldsanitätskolonnen*) attached to the Divisional Sanitary Establishments, and the Transport Columns of the Red Cross (*Blessiertentrans-*

*portkolonnen des Roten Kreuzes*) attached to the Field Hospitals. There are also separate establishments of the Red Cross, such as Field Hospitals, Hospital Trains, Stationary Hospitals, Convalescent Houses, etc.

Full details of the Red Cross work are, however, not contained in these Regulations, but in a special appendix (*Anhang*), which is shortly to be revised.

Information respecting the sick, wounded and missing is collected by the Common Central Intelligence Office (*Gemeinsames Zentralnachweisebureau* in Vienna, as also by an Information Bureau (*Auskunftsbureau*) in Vienna and another in Buda Pesth.

Civil medical men of distinction, especially surgeons and hygienists, may be attached as consulting surgeons to an army in the field. Their functions are exclusively of a medical and scientific character, and they exercise no influence upon the service.

The *direction* of the sanitary service is in the hands of the chief medical officers, under the direction of their military commanders. Accordingly, the direction is vested in the chief surgeons of the divisions and single brigades, the army corps and armies; further in the chief medical officers (*Sanitätsschefs*) belonging to the Army General Commands, and to the General Command of the Lines of Communication.\*

These directing surgeons are responsible for the performance of the sanitary service, and are obliged to make proper sanitary arrangements even without having received express orders to do so. Great importance attaches to the new regulation that during an engagement, when the attention of the military commander is almost exclusively occupied with the disposal of the troops, the surgeons are to proceed on their own authority to make all necessary sanitary formations.

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\*REMARK: In the field, the Austro-Hungarian troops are divided into armies with an Army Command at their head, and the Army General Command for service on the lines of communication. Each army is divided into corps, each corps into divisions. Above the Army Command stands the Chief Army Command, to which the General Command of the Lines of Communication is added for the management of the service on the lines of communication.

According to the new regulations the First Aid Stations (*Hilfsplatz*) are established exclusively by the sanitary staff of the troops in convenient positions. To supplement the store of sanitary material with which the troops are furnished, viz., the contents of the surgeons', sanitary attendants' and stretcher-bearers' pouches, as well as the orderlies' knapsacks, a special service of sanitary supply wagons (*Hilfsplatzwagen*) filled with stores, has been organized. These wagons actually belong to the Divisional and Brigade Sanitary Establishments, but are allotted to the troops before and during engagements. A Divisional Sanitary Establishment has nine, a Brigade Sanitary Establishment two such wagons.

From a medical point of view it would have been advisable to give over these wagons entirely to the troops. But, regarded from a military standpoint it was found impracticable to attach such a large number of wagons to the troops permanently.

During an engagement, the regimental sanitary staff, directed by the military surgeons, follows the detachments as far as possible, and gives assistance to the wounded on the spot. As soon as the engagement has acquired a certain degree of stability, first aid stations are erected as near to the engaging troops as is consistent with safety.

Stretcher-bearers, conducted by the surgeons and sanitary attendants, are sent out from the first aid stations to fetch in the wounded, so far as the enemy's action allows. Full advantage must be taken of all natural shelter afforded by the locality as well as of pauses in the engagement.

At the First Aid Station the work of the surgeons falls into three groups. At the Receiving Group (*Übernahmegruppe*), the wounded are examined, and then, according to their condition, they are assigned either to the group for slightly wounded (*Leichtverwundetengruppe*), or to the group for severely wounded (*Schwerverwundetengruppe*). After treatment, the slightly wounded who are able to march are sent to the station for slightly wounded (*Leichtverwundetestation*) of the Divisional Sanitary Establishment. The severely wounded are conveyed in ambulance wagons from the first aid station to the

dressings station (*Verbandplatz*) of the Divisional Sanitary Establishment.

To each Infantry Division there is attached an Infantry Divisional Sanitary Establishment, under the orders of a staff surgeon, and consisting of the following departments:

1. The Sanitary Supply Wagon Column (*Hilfsplatzwagenstaffel*). As already mentioned, the wagons are assigned to the troops for the first aid stations during an engagement.

2. The Station for Slightly Wounded (*Leichtverwundetenstation*), where the slightly wounded are collected after treatment and taken care of. Thus the dressings station is relieved of this disturbing element.

3. The Dressings Station (*Verbandplatz*) for treating the severely wounded.

4. The Ambulance Station (*Ambulanz*) where the severely wounded treated at the dressings station are received and taken care of. For this reason the dressings and ambulance stations must always be situated close together.

5. The Ambulance wagon column (*Blessiertenwagenstaffel*). These wagons serve for the removal of the severely wounded from the first aid stations to the dressings station.

6. The Sanitary Supply Reserve (*Sanitätsmaterialreserve*) containing stores, to replace those used by the troops and by the establishment itself.

Each Infantry Divisional Sanitary Establishment has also attached to it a Field Sanitary Column of the Teutonic order (*Deutsch-Ordens Feldsanitätskolonne*), consisting of four ambulance wagons and one sanitary supply wagon, which can be used when necessary.

The Station for Slightly Wounded, the Dressings Station, the Ambulance Station and the Sanitary Supply Reserve are exactly divisible into two halves. Each of these halves is comprehensively styled a "section" of the establishment. The establishment thereby acquires great flexibility and elasticity.

The central point of the sanitary service during an action is the Dressings Station. It is divided into a Receiving Group and a Surgical Group, to which the Ambulance Station may be added as

a third group, affording a temporary hospital for the severely wounded after they have been operated on and dressed.

The Divisional Sanitary Establishment of a Cavalry Division is materially simpler. It consists merely of an Ambulance Wagon Column and a Dressing Station.

The Infantry Divisional Sanitary Establishment with a mountain equipment is adapted to the circumstances of warfare in mountainous districts by a still greater degree of divisibility. The Dressing Station and the Sanitary Supply Reserve are each divisible into four parts, the Ambulance Station into two. There is no special station for the slightly wounded. The ambulance wagons follow as far as the roads allow. All the stores of the establishment are laden on pack mules.

A Brigade Sanitary Establishment is assigned to each single Infantry Brigade. It consists of a Sanitary Supply Wagon Column, a Dressing Station, an Ambulance Station, an Ambulance Wagon Column and a Sanitary Supply Reserve. The equipment of this establishment roughly corresponds to half that of an Infantry Divisional Sanitary Establishment.

The wounded are conveyed from the Divisional Sanitary Establishments to the Field Hospitals, where they receive the first regular hospital treatment and nursing. For military reasons—in order not to increase the number of units—the field hospitals for 600 sick or wounded have been retained. But each field hospital is divisible into three sections (for 200 patients), each of which can be employed independently. The administrative service is also arranged in sections, even in the case of the combined Field Hospital, so that a Field Hospital really consists of a group of three small Field Hospitals. A Transport Column of the Red Cross, divisible into three sections, is attached to each Field Hospital for the conveyance of the wounded. In mountain warfare single sections of the Field Hospital are provided with pack mules, and are further divisible into two half sections.

A number of field hospitals are assigned to each Army Corps, and are to be got in readiness before battles and engagements, so that whenever possible some of them can be set up in position the day of the action. The remainder form a reserve of the Army Command.

The Divisional (Brigade) Sanitary Establishments and the Field Hospitals serve merely for the temporary reception of the sick and wounded, and must be cleared ready for new patients as quickly as possible. Accommodation of a more or less permanent character is afforded by other establishments situated in the rear of the troops. These are the Mobile Reserve Hospitals (*mobile reservenspitäler*) for those seriously ill (severely wounded), the Field convalescent Houses (*Feldmarodenhäuser*) for the slightly wounded and convalescent. Also the Mobile Halting Stations for the Sick (*mobile Krankenhaltstationen*), which provide temporary accommodation for the night to the sick and wounded who are being sent back to the base.

As a rule, these institutions are only formed during a campaign as occasion offers. They draw their staff from the reserve staff of the Army General Command, and their supplies from the Medical Supply Depot.

A Mobile Reserve Hospital is organized similarly to a Field Hospital. Thus it consists of three sections, each accommodating 200 patients. Each section can be used independently. A Field Convalescent House is generally capable of taking 500 slightly wounded. A Mobile Halting Station for the sick is equipped to supply 200 patients with provisions and accommodation for the night.

In each Army, it is the duty of the Army General Command to employ these hospitals according to the directions of the Army Command, two Mobile Reserve Hospitals, three Field Convalescent Houses and two Mobile Halting Stations for the sick are reckoned for each Army Corps.

When there is a likelihood of serious encounters with the enemy, it is the duty of the Army General Command to see that the hospitals are got ready and so disposed that they reach the spot where they are required at the proper time.

These hospitals are, however, also employed for ambulance purposes in the deployment zone and on the lines of communication.

When the number of the Mobile Halting Stations for the sick is found inadequate, Provisional Halting Stations for the sick

(*improvisierte Krankenhaltstationen*) can also be established.

If there are cases of infectious disease among the troops, special Hospitals for Infectious Disease (*Epidemiespitäler*) must be established, each accommodating 200 patients.

Permanent Hospital Trains (*Eisenbahnsanitätszüge*) and Permanent Hospital Ships (*Schiffsambulanzen*) supplemented by Provisional Hospital Trains (*Krankenzüge*) and Provisional Hospital Ships (*Krankenschiffe*) are used to convey the sick long distances; The Permanent Trains and Ships, are intended for the severely wounded, who require hospital treatment during the journey. A Permanent Hospital Train accommodates 144 patients, a Permanent Hospital Ship 116-132. The remainder of the sick are conveyed in the Provisional Hospital Trains and Ships, some in a recumbent, others in a sitting position. A Provisional Hospital Train may only under exceptional circumstances be used to convey more than 400 sick or wounded.

To promote hygienic investigations in the district where the troops are operating, a newly appointed Sanitary Commission (*Salubritätskommission*) is attached to each Army General Command. It consists of two military surgeons and one military pharmacist, who must be specialists in hygiene, bacteriology or chemistry. If need arises, this commission is augmented by the required number of doctors, chemists, officers and men drawn from the troops who have had a technical training.

The new Regulations attach special importance to the directions respecting the sanitary arrangements in the deployment zone (*Aufmarschraum*), returning the sick to the rear (*Krankenabschub*) and the dispersion of the sick (*Krankenzerstreuung*).

As already mentioned, the deployment zone of an army is equipped with Mobile Reserve Hospitals, Field Convalescent Houses and Halting Stations for the Sick. In order to make all sanitary arrangements before the arrival of the troops, *i. e.*, to introduce precautionary measures against infectious disease, the Chief Surgeon of each Army Corps (*Körpschefarzt*) is sent in advance to the deployment zone. If necessary, Local Sanitary Commissions (*Locale Salubritätskommissions*) are appointed on the spot to investigate and remove anything that is objectionable from a sanitary point of view.

As it would be unadvisable for military and sanitary reasons to allow a large number of sick and wounded to remain in the neighborhood of the army, a continual stream of disabled men must be kept passing to the rear. The distance to which they are sent varies with the degree of disability, some being only despatched to the etape zone (*Etappenraum*) others to the base. Accordingly, there is a distinction between returning the sick to the rear (*Krankenabschub*) *i. e.* sending them back from the mobile army to the hospitals in the etape zone, and dispersing the sick (*Krankenzerstreuung*) *i. e.* distributing the sick at the base.

The returning (*Krankenabschub*) of the sick is regulated by the Army Command, the dispersion (*Krankenzerstreuung*) by the War Office. The main principle to be observed respecting the returning of the sick is that all the sick and wounded whose condition affords hope that they will be able to resume their service are not to be sent beyond the boundary between the etape zone and the base zone. The very slightly wounded, who will be able to serve again in a short time are not to leave the field of operations at all.

In order to comply with these principles; it is necessary that the sick and wounded shall be thoroughly inspected at frequent intervals. This inspection must take place at the Field and Mobile Reserve Hospitals from which the sick are despatched, at the Returning Stations (*Krankenabschubstationen*) and the dispersing stations (*Krankenzerstreuungstationen*).

Returning Stations are established by the Army Commands near the border between the field of operations and the etape zone, chiefly in those places where the railway ceases. Thus the removal of the sick from the carriages to the trains (or ships) also takes place at this point. Each returning station is equipped with one Mobile Reserve Hospital, one Field Convalescent House and one Mobile Halting Station. The Mobile Reserve Hospital is intended for the severely wounded, whose condition does not allow of their being conveyed any further. The slightly wounded, whose rapid recovery is expected, are taken to the Field Convalescent House. The Halting Station affords temporary accommodation to those who are merely passing through.



The Regulations also contain special directions for those cases in which, after an engagement involving heavy losses, a wholesale removal of the wounded from the numerous Field Hospitals must take place. Removals on such a large scale from the field of battle are generally directed by the chief medical officer of the Army General Command, assisted by an officer of the General Staff, railway officials and others.

To secure uniformity in the removal of the sick, the various sanitary establishments are divided into groups with an army surgeon of high rank at the head of each as director of the group (*Gruppenleiter*). Wagons and attendants for the removal of the sick are attached to each group.

The directors of the groups report daily to the chief medical officer the number and class of the sick in each establishment who will be ready for removal on the following day. The chief medical officer, after taking all the circumstances into consideration, decides when and how many patients are to be sent from the groups to the Returning Station. The sick who are to be removed to the base are taken by rail or ship from the Returning Station (*Abschubstation*) to the Dispersing Station (*Zersreuungstation*). At least one Mobile Reserve Hospital, one Field Convalescent Hospital and one Halting Station are established in the Dispersing Station for the same purposes as in the Returning Station. Here the sick who are permanently disabled, or whose recovery will be slow are allotted to the various hospitals throughout the country, according to directions received from the War Office. On this account the district commands are required to send information periodically to the War Office respecting the available capacity of the permanent hospitals.

At home the sanitary service is, generally speaking, carried out in accordance with the provisions for time of peace.

From this short summary it can be seen how comprehensive sanitary service in war is, and what a formidable task the execution and direction of this service lays upon the military surgeons.

The Regulations which I have sketched show a material advance in point of service. But they are also permeated by a spirit of humanity, which finds its expression in the words which form the heading of the book: "The Regulations cannot provide for every possible contingency in war. When any doubt arises the

welfare of the sick and wounded,—so far as is compatible with military requirements—is to be thought of in the first place. No considerations of an economic nature or reluctance to assume responsibility must be allowed to interfere with it.”

If carried out in this spirit the new Regulations will, in the event of a great war, fulfill their noble ends, and benefit not only the sick and wounded, but also the whole army and our Country.

#### RUPTURE OF THE RECTUS ABDOMINALIS IN CAVALRYMEN.

**I**N the “Archives de médecine et de pharmacie militaires” August, 1904, and September, 1904, M. Lénéz states that rupture of the rectus muscle of the abdomen has attracted little attention heretofore, and deserves some study. It occurs almost exclusively in recruits, under the following conditions: A cavalryman is mounting without the aid of his stirrups; while springing to the saddle he experiences a sharp pain in the hypogastric region, resembling a knife stab; he cannot repeat the attempt, nor can he move even; respiration is suspended for an instant, or is entirely costal; he is doubled up, his face is pale, he has a sensation of tearing and weakness in the lower abdomen, and the pain is referred to the corresponding lower extremity or to the lumbar region. General symptoms ordinarily absent, though nausea, vomiting and colic have been observed. The physical signs are those of a deep seated tumor, broad as the hand, transversely elongated, moves with the muscle; its volume is constant, irreducible. It must be differentiated from abscess, hernia, appendicitis, strangulated and omental hernia. The seat of the rupture is usually on the right side, 2, 3, or 4 cm. above the pubes, and is total in only 12 per cent. of cases. The prognosis is good; heals readily, and function restored in from three to seventeen days, average eight. The treatment consists in putting the patient at rest, not necessarily in bed; sedative fomentations and wide binder; fly blisters will hasten the absorption of the hematoma, On the first sign of strangulation, open up the abdomen. Electricity has given good results, a weak current followed by stronger ones, gradually increased in intensity.—S. M. DELOFFRE, U.S.A.

## GYMNASTICS AND ATHLETICS, WITH SPECIAL REFERENCE TO FOOTBALL.

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**T**HE necessity of bodily exercise, especially for growing young men, is admitted; the question at issue is chiefly the amount needed and the best forms in which it should be taken.

A few general remarks on the physiology of exercise may clear the way and lead to a better comprehension of the subject.

We know that our nervous energy and consequent capacity for mental and physical work depend upon active cell metabolism, that is, constant and rapid renovation of tissues. The most vital factor in this work of nutrition, assimilation, dissimulation and elimination, whereby heat and energy are evolved, is oxygen. Unless the blood be thoroughly oxygenated, all functions suffer. An abundant supply of oxygen to the tissues is the great end of exercise.

When voluntary muscles are set in motion, they require more blood, especially more oxygen. If this motion be active and continued, or becomes, violent, the need of oxygen is so much greater that the heart is stimulated to quicken action in order to furnish a more rapid flow of blood to the contracting fibres; hence the increased frequency of pulse in exercise. But since the blood obtains its oxygen from the lungs, it follows that, simultaneously with increased pulse, there must be increased respiration, increased first in depth and then also in frequency. Heart and lungs, then, are functionally, as well as structurally, very intimately connected, and any stimulation or disturbance of the one is necessarily felt by the other.

At the beginning of active exercise more venous blood is returned to the heart; the right ventricle labors to empty this increased amount into the resistant lungs. There is, in this first stage, a rise of blood pressure, indicated by the labored heart-beats and more or less breathlessness. But soon the resistance lessens; the lungs expand, the peripheral vessels dilate and the blood pressure falls; the heart pulls itself together and the so-called "second wind" is established.

The greater the amount of oxygen absorbed, the greater is the amount of carbonic acid produced, the greater is its accumulation in the blood and the more rapid its exhalation from the lungs. At first, the greater respiratory energy, the deeper and quicker breath, will cause an adequate elimination of this obnoxious gas but as the exercise continues or increases in violence the equilibrium is destroyed between its production and the eliminating power of the lungs; it accumulates in the system and respiratory distress occurs. This accumulation is doubtless the chief cause of the dyspnoea or breathlessness of violent exercise, a much more important factor in its production than cardiac disturbance; thus, when, from strenuous muscular effort, the pulse and respiration have doubled in frequency, it will be noticed that, after a rest of a few minutes, when the dyspnoea is all over and respiration has returned to its ordinary rhythm, the pulse rate continues much above the normal; whence we may conclude that, since the heart does not recover its normal action until long after the disappearance of dyspnoea, it cannot be the main agent in its production.

The gentle or moderate exercise of a few muscles, for instance those of the upper extremity, may not produce any appreciable fatigue, or, if prolonged, may produce only local fatigue without respiratory difficulty, but in all violent muscular effort there is always a corresponding disturbance of heart and lungs, a disturbance which is in direct ratio to the sum total of work done, and therefore not necessarily proportional to the degree of fatigue felt; thus, as mentioned above, a man may be tired with hardly any increase of pulse or breathing, while, on the other hand, he may run up-stairs and get out of breath without muscular fatigue.

It is readily understood that, whenever the heart is spurred on to more vigorous effort, not only the working muscles are benefitted but, through the greater velocity of the more highly oxygenated blood, all the organs and tissues of the body receive an increased share of oxygen and other nutritive principles; therefore the man who walks not only exercises his lower extremities but his brain and liver as well.

The brain which thinks is analogous to the muscle that contracts; more blood flows through it, producing more active combustion, greater heat and increased dissimulation. Thinking, then, is exercise for the brain, but an incomplete one, for the waste products accumulate faster than they are eliminated and a clogging of the mental machinery is liable to occur. In order to get rid of them and increase the supply of nutritive principles, we need a quicker blood current, that is to say, the increased action of the heart and lungs produced by muscular exercise. Hence, it follows that gymnastics and athletics are necessary for the brain. It follows also that when, from violent or continued physical work, the system becomes saturated with carbonic acid and other waste products, and fatigue more or less intense results, the brain is affected as much as the muscles and unable to functionate properly. It is a great mistake to imagine that the brain does not share the fatigue of the body and that a physically exhausted man can think as clearly and successfully as when in a state of rest.

Exercises have been divided into exercises of strength, exercises of speed and exercises of endurance. We might add a fourth category, namely, exercises of skill. In all games and sports the characteristics of these several classes of exercises are more or less combined.

Exercises of strength, such as wrestling, lifting weights, tug of war, etc., demand the simultaneous, sustained action and whole force of many muscles. In order that these muscles may take a very firm attachment, it is necessary that the chest be filled with air and all the bones of the trunk strongly fixed, with glottis closed. This fixation of the trunk requires will-power, a special effort. Exercises of strength cause an abundant and con-

tinuous flow of blood into the muscles and produce all the conditions necessary for energetic tissue repair. They need very little work of coordination, or repetition of movement, occasion but little nervous disturbance and do not demand great brain work; in other words, "they increase energetically, and even violently; the working of all the organs of the body, while leaving in relative repose the nerve centres and psychical faculties."\*

Exercises of speed are those which require frequent repetition of movement; the muscles are not called on to act with their utmost energy, but to contract and relax a great many times and at very short intervals, the result being the same amount of mechanical work performed and the same increased activity of the respiratory and cardiac functions as in exercises of strength; but they do so with less muscular fatigue and less disturbance of lungs and heart. On the other hand, experiment shows that muscles subjected to small, frequently repeated contractions, receive less blood than during one long-sustained contraction. Therefore the nutrition and development of muscles is much less marked in exercises of speed than in exercises of strength; it is noted that professional runners have trim legs and comparatively small calves. Furthermore, Lagrange also calls attention to the excessive expenditure of nervous energy and certain phenomena of exhaustion produced by exercises of speed, out of proportion to the quantity of mechanical work performed: a state of nervous excitability which prevents repose and sleep, defective nutrition and repair, and, sometimes, great loss of weight.

Exercises of endurance are those in which the muscular effort is moderate and the movements not too rapid, but in which the work is continued for a long time. The duration is subordinate to the power of the lungs and heart, and the intensity of the nervous energy which actuates them. Walking is the type of exercises of endurance, but when performed up a steep slope may become an exercise of strength. Rowing over a short course is mostly a work of speed, but, in a long race, becomes a work of endurance. In these exercises all the functions are stimulated but in a milder way and without danger of violence to any organ.

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\*Physiology of Bodily Exercise. Lagrange.

A serious objection is that they do not excite the respiratory movements with sufficient strength to expand the air-cells and increase the capacity of the chest. They are also rather tedious and irksome from the monotony of the same movements long continued. For these reasons they are best adapted to the physically weak or defective as well as to persons of ripe age.

In exercises of skill, the psychical faculties are more severely taxed than in any other kind; they require speed, repetition and accuracy of movement, and special training of certain sets of muscles. Their effects are mainly those of exercises of speed, but as movements of rest are more frequent and the strain is less continuous, they seldom give rise to the utter prostration which occurs, for instance, in running and rowing races.

Football is a compound exercise, partly of strength, endurance, speed and skill; hence its superiority.

#### GYMNASTICS AND PHYSICAL TRAINING.

The exercises of the gymnasium are susceptible of great variation and therein lies one of their chief advantages. It is possible so to order and combine them as to contract, to any desired degree, every muscle, tendon and ligament, thus securing suppleness of joints as well as development of tissues, for it must be borne in mind that agility is as desirable as strength. Simple callisthenics, without apparatus, can be made exceedingly useful and should never be overlooked. An objectionable tendency in the gymnasium is to give a preponderant share to the exercises of the upper extremities. The arms are vigorously trained as in suspending or supporting the body, and often made to usurp the office of the legs; they soon become greatly developed, often out of proportion to the rest of the body this development, in professional gymnasts, often amounting to deformity, such as protuberant shoulder-blades and round back. The legs, served by powerful muscular masses, are capable of much work with little fatigue. A man who runs quickly upstairs, or up a steep slope, performs a sum of work which far exceeds any muscular effort he is able to do in any other way during the same time.

The vital importance of chest development need not be dwelt upon; upon the size and shape of the chest depend, to

a great extent, the capacity and vigor of lungs and heart. The best way to increase the expansion of the chest is to strengthen the so-called respiratory muscles, those concerned in elevating the ribs and sternum and depressing the diaphragm. It is an error to believe that this purpose is best attained by exercising the upper extremities; experience shows that it is best attained by the exercise which compels the deepest inspiration and insures the most complete inflation of all the pulmonary vesicles; we must therefore seek to increase the amplitude and frequency of the respiratory movements. These movements depend upon the intensity of the respiratory need, while the intensity of this need depends on the quantity of mechanical work performed in a given time. The sum of work performed by a muscular group is according to the strength of this group; the legs possessing three times as much muscle as the arms can perform three times the amount of work before being exhausted. Therefore, it is chiefly by the use of the legs, as in running, or ascending slopes, that the chest is to be developed.

Another advantage of gymnastic exercises is that they are easily watched, regulated and controlled, consequently free from injury or accident. Thus it is a very remarkable record that during the twelve years the present West Point gymnasium has been in operation not a single serious injury has occurred, neither fracture nor dislocation. Furthermore, gymnastics can be carefully graded and adapted to individual wants so that overtraining is impossible. There is no question, then, that they can be made to answer fully and successfully all the physical needs of a growing youth. They are performed at the word of command, requiring attention and prompt obedience; this, however, is not an unmixed advantage, for exercises under coercion are not always performed with alacrity and thoroughness; they are more like work than play, may become irksome and often fail to bring out will-power and nervous energy. This is why athletic games, with their greater freedom, variety and excitement, will always be a pleasant, useful and necessary addition to mere gymnastics.

We shall now consider some of the effects, upon cadets, of the physical training carried out at the West Point Military



Academy during the four years of their course, this training including gymnastics, callisthenics, fencing, swimming, foot and mounted drill, and athletic games.

The age of admission to the Academy ranges from 17 to 22, the average being about 19.26; for those cadets who become football players, the average is about 19.65, or five months older. The average age of the West Point eleven at the close of the football season of 1903 was 22 years and 5 months.

The following table, kindly prepared for this paper by Lieutenant Koehler, instructor in physical training, is interesting and instructive. It is based on the data obtained from the four classes graduated in 1900, 1901, 1903 and 1904, comparing the total number of men in those classes (346) with the number of football players among them (40).

AVERAGES FOR TOTAL NUMBER.

Height.	Weight.	CHEST.	
		Norm'l Expiration.	Inspiration.
Entrance.....67.85 in.	141.16 lbs.	33.72 inches	35.90 inches
Graduation.....68.82 in.	146.78 "	35.48 "	37.78 "
Increase......97 in.	5.62 "	1.76 "	1.88 "

AVERAGES FOR FOOTBALL PLAYERS.

Entrance.....68.77 in.	155.90 "	35.42 "	37.50 "
Graduation.....69.36 in.	160.26 "	36.64 "	39.09 "
Increase......59 in.	4.36 "	1.22 "	1.59 "

COMPARISON OF INCREASES.

Total No......97 in.	5.62 "	1.76 "	1.88 "
Players......59 in.	4.36 "	1.22 "	1.59 "
In favor of Total No.... .38 in.	1.26 "	.54 "	.29 "

COMPARISON OF AVERAGES.

Entrance.....			
Players.....68.77 in.	155.90 "	35.42 "	37.50 "
Total No.....67.85 in.	141.16 "	33.72 "	35.90 "
In favor of players......92 in.	14.74 "	1.70 "	1.60 "
Graduation.....			
Players.....69.36 in.	160.26 "	36.64 "	39.09 "
Total No.....68.82 in.	146.78 "	35.48 "	37.78 "
In favor of Players......54 in.	13.48 "	1.16 "	1.31 "

Very striking in this table is the physical superiority of the man selected for the football team, being, at entrance, nearly an inch taller and weighing 14 or 15 lbs: more than the average man in his class, with correspondingly larger chest. Indeed, it is the best developed men, that is those least in need of exercise, who are selected, clearly showing that the end in view is not physical culture but results in encounters with competitive institutions.

It has been observed that most players at the Academy lose two or three pounds between the close of the season in the fall and the time of graduation in the following summer, so that they would probably have that much added to their gain did we take their weight in November, when at their best training stage, instead of the following June. This loss of a few pounds is readily explained by the reduced assimilation naturally resulting from decreased bodily activity and increased mental preoccupation.

It is also noticed (in comparison of increases) that the gain of the average cadet, in height, weight and chest, is noticeably greater than that of the football player during the four years which elapse between entrance and graduation. This is perhaps what should be normally expected, for players being nearer their maximum development at time of entrance, their further growth would be less rapid, although maintaining their superiority to the end; yet it is somewhat of a surprise; seemingly indicating that football, as played at the Academy, has no marked effect upon weight increase.

Surgeon Henry G. Beyer, U.S. Navy, gives an interesting account of the effects of football training at the Naval Academy and other institutions.\* At the Naval Academy, the increase in weight, during the two months of training, was 7.90 lbs. in 1892 and 7.20 in 1893, while the increase of lung capacity was 11 cubic inches (from 277 to 288). Furthermore, this increase in weight was to a large extent permanent, the loss, six months afterwards, being only from 1 to 2 lbs. The averages of the teams, for 1892 and 1893, were: age 19.11, height 69.20 inches, and weight 161 lbs. Dr. Beyer gives the averages of the teams of six leading colleges (including Naval Academy) for 1892, as follows: age

\*Football and the physique of its devotees, from the point of view of physical training. *Am. Journ. Med. Sc.*, Sept. 1894.

20.90, height 69.80, weight 168 lbs., lung capacity 278 cubic inches.

Looking into Dr. Beyer's results, one cannot help some surprise, and perhaps a little incredulity, at the increase in weight stated to have occurred in two months training and playing, namely (average of two years), 7.55 lbs. I presume it may be inferred that this increase occurs every football season, so that the player who remains four years on the Naval Academy team has thus 25 or more lbs. added to his weight, besides his ordinary and normal growth during the other ten months of each year. I regret that, as yet, there are no statistics at West Point for comparison, but it may be positively affirmed that the weight increase from football training, if there be any, is much less. Certainly, Lieut. Koehler's table does not bear out Dr. Beyer's conclusions.

Concerning the average weight of players, to wit, 160.26 lbs., given in this table, a few explanatory words seem necessary. It is much smaller than the average weight of the West Point team; thus taking the regular teams for the six years 1897 to 1903 inclusive (1900 omitted because not obtainable), we find their average to be 170.5 lbs., or about 10 lbs. more. We account for this by the fact that the weight given in the table is that of graduation time and not that of the training season, and by the further fact that it includes all members of the football squad who graduated, substitutes as well as regulars. It is also useful to note, in this connection, that the weight of teams changes considerably from year to year; thus the average for the first three of the six years named above is 166.5, while that of the last three is 174.5, a difference of 8 lbs.

#### INJURIOUS EFFECTS OF ATHLETIC GAMES UPON THE BODY.

There is no doubt that the best effects of exercise upon the body can be, and generally are, obtained from athletic games and sports, provided the young man indulging in them is physically sound and properly trained. Assuming these two conditions, the result of athletics upon the growth and aptitudes of the body cannot be over estimated. The athlete with ample chest, well developed organs, and trained nerves and muscles, has a greater capacity for physical and mental work, is more resistant to the

germs of infectious diseases, and is therefore better equipped for the battle of life than the average man.

The effect of athletics upon heart and lungs is one of the most important and interesting phases of the subject, from the point of view of the hygienist, but one upon which more light is needed. The power of accommodation and adaptation of these organs to demands made upon them is simply wonderful. Thus, after violent exercise, in the trained athlete, we see the pulse jump from 70 to 150 or even 180, while respiration is doubled or trebled; but after a short period of rest, longer for the heart than for the lungs, these organs return to their normal state; they have not been taxed beyond their physiological capacity and are probably the better for the exercise. But it must be very difficult, at times, to decide whether safe limits are not exceeded and overstrain produced. Thus, Dr. E. Giertsen describes the effects of ski races near Christiania; several of the competitors had a pulse of 200, dicrotic and, with omission of an occasional beat, who soon recovered without any apparent ill result; while others, with livid, cyanosed complexion, fluttering intermittent pulse, and irregular superficial respiration, interrupted by cough, did not recover for several days or weeks; these had doubtless exceeded their limits. Over exertion is very common in all forms of athletics, especially in running and rowing, and the symptoms of it are well known: nervous exhaustion, restlessness, irregular, dicrotic pulse, palpitations, cyanosis, fall of temperature, disturbed nutrition, etc. The damage thus inflicted to heart and lungs is not always perceived or appreciable, but that these organs suffer then, or later, in consequence of it, is not at all improbable. We may admit that in young men, in whom reparative forces are most active, the heart injured by an occasional overstrain does entirely recover itself; but if this overstrain is frequently repeated, the mischief may become permanent.

The athlete's heart, from continued active exercise, becomes larger and stronger; there is a regular thickening and strengthening of the ventricular walls, especially on the left side; in other words, there is simple hypertrophy, a physiological process intended to render the heart adequate to the unusual demands

made upon it. But there is a point when—the strain continuing or increasing—this physiological hypertrophy becomes pathological. The persistent increase of the tension to which the segments of the aortic valve are subject during diastole induces a slow, progressive sclerosis of those segments, and eventually aortic insufficiency. "So often is this form of heart disease found in persons devoted to athletics that it is sometimes called the athlete's heart" (Osler).

Another ordinary and normal effect of violent athletics is temporary dilatation of the right side of the heart, due to the passive congestion of the lungs and increased intra-cardiac pressure existing in the primary stage of muscular effort. To this dilatation are chiefly due the increased size of the heart during and immediately after a hard contested game, and various murmurs often heard at that time over the base or body of the heart. These murmurs are attributed, by some observers, to the expansion, and pressure against the chest wall, of the conus arteriosus, or upper conical portion of the right ventricle from which the pulmonary artery arises; but they may also result from tricuspid insufficiency and probably other causes. This physiological dilatation of the right heart soon subsides, unless the effort has been too violent or too long continued, in which case collapse may supervene, with complete nervous prostration. Even then, recovery, although perhaps requiring days and weeks, is often complete. Of course, a repetition of such violent over-exertion is not unlikely to produce pathological alterations and permanent damage; cases of this kind are not at all rare in the experience of physicians.

The hearts of the members of the West Point football team, for 1903 (14 in number), were carefully examined a month or two after the close of the season. Contrary to expectation, I found no sign of hypertrophy of the left ventricle; in not a single case did the apex extend to the nipple line; the nearest came within  $\frac{1}{4}$  inch, and another  $\frac{3}{8}$  inch, of it, while the furthest was  $1\frac{1}{4}$  inches distant. Most of these men had been playing football rather strenuously for several years; the quarter-back (apex half inch inside nipple line) for nine years, and the tackle (apex

three-quarter inch inside) for eight years. In a majority of these cases, however, there was an extension of the right border of the heart beyond the left edge of the sternum, a dull percussion sound, being elicited to the middle of the sternum in 6 cases, and beyond it in 3. It would thus appear that if any cardiac enlargement was present at all, it involved the right rather than the left ventricle. In most of the cases the aortic and pulmonary second sounds were markedly accentuated; otherwise the sounds were normal, except in two cases: (1) F.A.P. who had an aortic murmur with second sound and distinct impulse wave at apex; (2) F.W.H. who had a cardio-pulmonary murmur at apex with first sound; in this case the heart extended to the right edge of the sternum.

The effect of athletics upon the lungs, does not appear to have received the consideration it deserves. During active exercise, more blood is pumped into the lungs; the capillaries swell up and press upon the air-cells; at the same time inspiratory efforts become deeper and more frequent; the result is a great strain upon the air vesicles which yield and dilate, producing, as shown by W. Collier, a form of physiological emphysema. The expanded lung interposes itself between the heart and chest wall, muffling the apex beat and causing the absence of all superficial cardiac dullness; a hyper-resonant note on percussion can also be elicited above the clavicles and along the edges of the sternum. Like cardiac dilatation, this emphysema is temporary and harmless, but we readily conceive how it may also, should violent exercise be frequently repeated, become pathological and permanent. Even then, as it seldom produces much discomfort, it is not unlikely to be overlooked until after middle life, when nutrition and metabolism begin to fail.

We must also bear in mind that any degree of emphysema, even when only temporary, adds to the obstruction of the flow of blood through the capillaries of the lungs and becomes a notable factor in the causation of hypertrophy, and possible dilatation, of the right ventricle.

The effects of athletics in after-life deserve serious consideration. Are the changes and disturbances produced in muscles

and viscera, by reason of frequent and violent muscular effort during college life, likely to have detrimental effects in the course of years?

The direct and normal effect of rational athletics is doubtless beneficial, and the young man with a strong, agile body the body in which dwells the sane mind, starts in life with every chance in his favor. Whatever, in after-life, may prove superfluous in muscle or other tissue will be gradually lost. But what of the young athlete with huge biceps, broad back and hypertrophied heart, the hero of the diamond or gridiron, who, after graduating, settles down to a sedentary business life, as needs be the case with a majority of college athletes? While training they have developed an enormous appetite and acquired the habit of a generous diet, particularly rich in proteids. We know how difficult it is to change such a habit. Therefore we have an organism in which more energy is evolved than can be utilized; is it not to be feared that it may wear out rapidly, or become clogged with waste products?

Dr. G. Frank Lydston, of Chicago, himself an athlete of extended experience, says that after "cessation of active training \* \* \* in many instances the result is disastrous \* \* \* Every physician athlete with whom I have been associated in the last twenty-five years has coincided with me in the foregoing views." \*

The ultimate effects will depend much upon the mode of life of the individual. Graduates from West Point and Annapolis who, as officers, continue the practice of an active outdoor life hardly ever suffer. Business men who keep in touch with athletic and country clubs, continue to exercise, in a milder form, and judiciously reduce their diet, especially fats and proteids, will very rarely suffer. The best we can expect from an enlarged muscular fibre, when compelled to comparative inactivity, is that it will degenerate quietly and give no trouble. Hypertrophied muscle, heart excepted, gradually loses size and density without detriment to the organism.

That the athletic heart may give rise to much trouble, in after-life, is a well known fact, recorded by many observers. As

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\* *American Medicine*. Feb'y 28 and March 7, 1903.

long as thirty-five years ago, Dr. Clifford Allbutt called attention to the slow but pernicious effect of the hypertrophied left ventricle in causing stretching and dilatation of the aorta with subsequent insufficiency of the valves, the patient often not seeking medical aid until after middle life. A few quotations from recent writers will be in point:—

From Dr. Lydston, already quoted: "The hypertrophied heart degenerates and degeneracy here means serious impairment of its structure and function. *Pari passu* with its degeneration it may develop dilatation; more or less fatty change may be found associated with myocarditis." According to Dr. W. Collier, of Oxford\*, cases of sudden and severe breakdown at races are exceedingly rare; "whatever changes (in the heart) are set up may be sufficient to make the athlete, at the time, short-winded and perhaps cause precordial pain and discomfort, but do not produce any striking and alarming symptoms; the danger all lies in the future twenty years onwards." He mentions sleeplessness as a troublesome symptom often associated with athletic hypertrophy.

From Dr. Alfred Stengel†: "I believe there is a possibility of development of symptoms many years after cardiac strain, without any indications in the intervening time. In my own experience I have found a number of instances of distinct symptoms of cardiac disturbance in football players after an interval of months or years." He describes several cases in which the symptoms were: oppression, sensation of distension, sometimes palpitations, but always consciousness of the heart in some form or other.

From Dr. Hobart Amory Hare‡: "Physicians who are in the habit of seeing young men professionally will constantly have their attention called to a condition of shortness of breath on exertion, palpitation, or violent pulsation of the heart, \* \* \*. In many of these youths there will be a history of the excessive use of tobacco, or that they have left college, where they had

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\**British Med. Journ.*, Feb. 16, 1901.

†The immediate and remote effects of athletics upon the heart and circulation. *Amer. Jour. of Med. Sc.*, Nov., 1891.

‡*Practical Therapeutics*, 8th edition.



been indulging in severe athletic exercise, such as running or bicycle racing, and have gone into business, where they lead a most sedentary life. In these cases the condition which exists is comparable to that of a steamer whose engines are too strong for her hull. The heart, which has heretofore been supplying the body of an athlete with blood, now finds itself too strong for the sedentary individual."

Dr. Benjamin Ward Richardson said that he did not believe there was a professional or celebrated amateur athlete in all England who, at the age of fifty, did not present symptoms of heart disease. Dr. Lydston warns athletes against the idea that they can continue to do their best work until middle life. Their arteries are particularly liable to sclerotic degeneration, and therefore they should not train nor enter competitive games after the age of thirty.

On the other hand, Drs. J. B. Blake and R. C. Larrabee\*, after describing the acute cardiac dilatation and the murmurs resulting therefrom, occurring in most runners, as well as the constant presence of albumen in their urine, and by the unexpected statement that: "In the entire three years, we neither saw nor heard of any serious, persistent after-effects, and it is yet to be proven that even these strenuous contests leave behind them any permanent injury." It is to be noticed that their knowledge of the runners' condition does not appear to extend beyond the three years covered by their observations.

Likewise remarkable is the result of Dr. Morgan's inquiry on the "After-health of the Oxford and Cambridge Inter-University Crews," extending over a period of forty years, showing that the vast majority of these oarsmen were apparently benefitted rather than injured by their exertions, and that, as regards heart disease there was little appreciable difference between them and other non-athletic Englishmen in like circumstances. It may be remarked that such investigation is surrounded with many difficulties and that it would take but few errors or oversights to vitiate the conclusions; also, that these oarsmen were all picked men and, in the course of years, should, normally, show a much

\*Observations upon long-distance runners. *Boston Med. and Surg. Jour.* Feb. 19, 1903.

smaller ratio of morbidity and mortality than their fellow countrymen.

As will appear further on, there is no record of heart trouble originating after graduation in any of the football players who have left West Point since 1892. It is to be noted that my information is obtained from the players themselves who may not know their real condition, and that there has not been a sufficient lapse of time to consider them entirely safe from the possible development of the after-effects described.

It is not only the circulatory system that is damaged in excessive and long-continued athletic training; other organs may likewise suffer. We have seen the danger of producing emphysema; what of the liability to pulmonary tuberculosis? A priori, such liability would seem unlikely. Tuberculosis grows only upon an enfeebled organism, and therefore would hardly be expected in an athlete, except after his vitality had been much depressed by disease. Emphysema is not mentioned by authors as a predisposing cause of tuberculosis, yet we readily conceive how collapsed and partly devitalized air-cells would afford a favorable nidus to bacilli. Regarding the influence of heart disease, we have been taught by Rokitansky and his school that there is antagonism between valvular affections and phthisis; that any cardiac lesion producing passive congestion of the lungs and increased vascosity of the blood confers a certain degree of protection against the tubercle bacillus. But such doctrine has been shown to be much less absolute than at first believed, and to present many exceptions. However that may be, there is a strong impression among physicians whose attention has been drawn to the subject, that athletes are not to any considerable extent safeguarded against phthisis; that, on the contrary, the number of cases of that disease observed among them, within a few years after leaving college, creates a well-grounded suspicion that there may be here a relation of cause and effect. For instance, my attention has been called to at least five such cases. It may be that the picture of consumption in a man of fine physique, with all the prestige conferred by athletic laurels, makes a more lively and durable impression. We know that pugilists are particularly

liable to phthisis, but, in their case, there are other determining causes which complicate the question.

The liver of the athlete who does not adjust his diet to his quieter after-life, is likely to become congested, torpid and sluggish; such condition is generally accompanied by digestive disturbances and lithæmia.

One of the most frequent evil effects of violent athletics, is renal congestion and overstrain. Albumen is often, if not always, found in the urine after severe and protracted muscular effort, and it would be well if this symptom were taken as a warning that renal resistance is being overcome and interstitial nephritis is impending. Those young men who, in their normal state, before training, present traces of albumen, should refrain from all athletic contests.

#### STATISTICS.

In order to utilize the experience gained at the West Point Military Academy, and draw therefrom practical conclusions regarding the effect of athletics upon cadets and students in general, a list of all the members of football teams who graduated at West Point, since 1892, was prepared and their record examined. The total number listed was 159. Of this number, the mortality, from date of graduation to end of 1903, is as follows:

Killed,.....	3	5
Drowned .....	2	
Died of disease—	Typhoid Fever, 2	5
	Cancer, 1	
	Malarial Fever, 1	
	Acute mania, 1	
Total.....	10	

It thus appears that 5 died of disease, representing a mortality of 3.14 per 1000. During the same period of years, the mortality from disease for all graduates, 769 in number, was 19, representing a ratio of 2.47 per 1000. According to these figures, then, the effect of athletic exercises, if any at all, is rather to increase than to diminish mortality in after-life. But, it goes with-

out saying that statistics based upon such restricted data have little value and no importance.

To the 149 living members, a circular letter was sent, containing the following inquiries: Condition of present health; weight and height at the close of their last football season and now; injuries received while on team and how long disabled on account of them; heart trouble or other disease contracted while playing, or since and referable to the game; probable effect of football upon academic standing; opinion as to its effect upon body, mind and character. To this letter ninety-six answers were received, a sufficient number to permit us to assume that they fairly represent the average opinion of the entire number. Of course, the testimony of these young officers, many of them until lately football enthusiasts, can hardly be considered unbiased; but we may certainly admit that they are good judges of the merits of the game, and that their conclusions, whether right or wrong, are given in a spirit of entire fairness.

Of the ninety-six who answered the circular letter, all report their present health as good, very good or excellent, with four exceptions; of these, three report their health as bad, attributing it to long tropical service; the fourth reports his health as only fair, because of cardiac enlargement.

The average weight of ninety of them at close of last football season was  $166\frac{1}{4}$  lbs. Their present average is 173 lbs. In twenty-one the present weight is less than at time of graduation. It seems probable that the number given as the weight at close of last football season, was only approximative in some cases, the tendency being always, under such circumstances, to err on the side of excess. This may explain the discrepancy between the above average of  $166\frac{1}{4}$  lbs. and that of 160.26 given before on Lieut. Koehler's table, the difference being too great to be accounted for by the ordinary loss of weight which takes place between the close of the football season and graduation time.

Of the eighty-one who give their height at time of graduation, the mean was exactly 6 feet 10 inches. Only eight report an increase of size since leaving the Academy, varying from a quarter to half an inch. It may therefore be accepted as a gen-

eral proposition that there is no increase in height after the twenty-third year.

To the question whether they received any injury, while playing, of sufficient gravity to disable them more than a day or two, fifty-one out of ninety-six, answer in the affirmative. The injuries include: concussion (one); dislocations of shoulder and clavicle (in five different subjects); fractures of nose, clavicle, finger, leg and ankle (in six different subjects); bruises and sprains, the sprains (wrenches and twists) of knees and ankles being most numerous.

The recipients of these injuries were under treatment in hospital for various periods of time, most of them from a few days to two or three weeks; at least twenty continued under treatment for a month or more, and five felt the effects of their hurts and were more or less disabled for several years, but have entirely recovered. Six are still reminded of injuries received while playing football, as follows: (1), sprained shoulder, "cannot throw a ball;" (2), dislocated shoulder, "still weak;" (3) synovitis of knee-joint, "giving occasional trouble;" (4) dislocated shoulder, "still a source of worry;" (5) sprained ankle, "still troubling me;" (6), knees wrenched, "one knee still a little weak."

The effect upon the heart is only mentioned in two letters; one reports "slight enlargement" and health only fair; the other, that "a former murmur which might have been due to athletics has disappeared.."

To sum up: many physical injuries but all entirely cured at the present time, with seven exceptions (including heart case), and of these seven excepted officers not one now completely incapacitated for duty.

According to the following quotation from the report of President Eliot for the year 1901-1902, the football players of Harvard do not fare better: "A quarter part of all who take part in this sport are injured enough to lay them up for ten days on the average, and a much larger proportion of those who really play the game are thus injured for the season. The changes in the rules during the past ten years have tended to increase the number of injuries rather than to diminish it. The temporary

injuries are so numerous that it is impossible to count on putting any particular eleven men into an important game on a given day."

The list of injuries to the Harvard men during the football season of 1901 was as follows: dislocations, elbow 1, clavicle 1, shoulder 1, finger 1; fractures, nasal bones 2, clavicle 1, ulna 1, metacarpal 1, rib 1; cuts 4; muscle and bone bruises 14; injuries about shoulders 7, about knees 16, about ankles 10; total 61. "None of the injuries above recorded were followed with permanent disability, or with serious after-effects."

#### EFFECT UPON STUDIES AND CLASS STANDING.

It is conceded that exercise is useful and necessary for the mind, and that so long as athletic games are played in moderation, within normal physiological limits, and only during the time allotted to recreation, there can be no question of their entire beneficial effect upon the mental faculties. But football, as now played is distinctly detrimental to intellectual culture:—

1. It is liable to absorb time which the athlete should devote to his books. His leisure hours are no longer his own; he must train and practice as bidden, whatever may be his class standing and need of study. Furthermore, how is it possible not to let thoughts of the past or next contest, where so much is at stake, take possession of his imagination, in the class-room, and interfere with application and concentration of faculties?

2. It is liable to produce intense fatigue. An exhausted body means a tired mind, one incapable of useful study. Each game involves the expenditure of an enormous quantity of nervous energy, and time is required to recuperate.

3. It is liable to cause many injuries, from which, indeed, the athlete recovers but for which he must be treated in hospital for days, weeks or months, valuable time irrevocably lost to him. Thus, adding together the days lost in hospital by the whole corps of cadets during the football season and immediately after (September, October, November and December) for the four years 1900–1903, and dividing by the number of cadets, it is found that the mean number of days lost in hospital by each cadet, in that period, is 13.41. If we make the same calculation

for the members of the football teams during the same four years, it is found that the number of days lost by each is 27.35, or more than twice as many. This takes no account of the duties cadets may be excused from without admission to hospital, and it is notorious that players are thus excused much more frequently than others.

To the question, what effect athletics had upon their academic standing, thirteen state that it was beneficial, twenty-two that it was bad, and the majority (of the ninety-six answering officers) that it was not appreciable, neither good nor bad. Such a question, considering the circumstances surrounding the players at the Academy, is difficult to answer, and we are more likely to reach the truth of the matter from the consideration of the records and other external facts. We have already seen how football interferes with study, and any such interference, during three months of the academic year, must needs have some effect upon examinations.

An inquiry naturally suggesting itself in this connection, as likely to throw light upon the comparative mentality of the football player, is: how does he stand in his graduating class? This was computed for the 159 players belonging to the twelve classes from 1892 to 1903 inclusive. Reducing each class to a basis of 100, then taking the mean standing of the players in each class on that basis, and averaging the classes, it is found that the football player stands 50.38, or almost exactly in the centre of his class.

If we call the first ten, in each graduating class, honor graduates, we find that for the entire number of graduates (769) the percentage of honor graduates is 15.40, while for football players it is 14.46. The ratio of honor graduates among football players has been diminishing of late years; thus the mean yearly number for the period 1892-1899, inclusive, was 2.37, while for the period 1900-1904, inclusive, it is exactly 1. It seems as if those cadets anxious to graduate near the head of their class realize the difficulty of doing so if members of the football team.

A certain number of cadets are turned back, that is to say, remain five years at the Academy before graduating. The per-

centage of "turned backs" for the whole number of graduates, from 1892 to 1903 inclusive, was 11.78, or nearly one out of each eight, while for the football players, during the same period, it was 16.98 or one out of each six.

In his report for the year 1894, the Superintendent of the Academy (Colonel Ernst) devotes considerable space to athletics, and concludes "that football as controlled here (West Point) had been beneficial to scholarship and an aid to discipline, and should receive a proper degree of encouragement." As basis for such opinion (as regards scholarship), he gives a statement of places gained and lost in the various branches of academic studies by the football players from September to December of the year 1893, that is to say, during the football season. The aggregate result, as computed from the Superintendent's figures (none given for the fourth class), is as follows:

	Gained	Lost	Excess of loss
1st class.....	73	85	12
2nd class.....	54	97	43
3rd class .....	92	161	69
Totals	219	343	124

It thus appears that the number of places lost exceeded by 124 the number gained, the loss being greatest in the third class, less in second class and least in first class, as would be normally expected. From this result it is impossible to concur in the conclusion of Colonel Ernst that football is "beneficial to scholarship."

There is another factor in this inquiry, not expressible in figures, but none the less operative at the Academy as well as at all colleges. It is the indulgence and favor, conscious or unconscious, shown players by professors and instructors (specially if former athletes themselves) in recitations and examinations, whereby their standing is higher than if marked strictly according to merit. Instructors may not readily acknowledge this very natural complaisance, but there can be no reasonable doubt of its existence and effect.

From all that precedes, we are safe in stating the simple proposition that football, as now played, is prejudicial to mental culture.



## EFFECT ON CHARACTER.

The effects of football upon character are good and bad. Let us first look at the dark side of the picture.

Football, like some other sports, such as wrestling, boxing, chausson, in which man is set against man, is liable to bring out a certain brutal spirit in the players, as well as in the spectators. Where so much depends upon pluck and muscle, self-control is difficult; it seems impossible, under excitement and provocation, not to use unnecessary force, not to let loose the savage element in our nature, and seek victory by unworthy means. It is notorious that questionable methods, including trickery, deception and evasion of rules, are countenanced and even encouraged by coaches.

It is also true that the enthusiasm and delirious shouts of the multitude invest football with a glamor and importance which must deeply impress the average player and impel him to the belief that athletics are the chief end of college life, and that a man is to be valued in accordance with his muscular development and vital capacity; hence self-satisfaction, ungentleness, a disposition to run over everybody's opinion and bully his comrades; now and then a star player becoming in after-life, "selfish, plausible and tricky," as described by one of my correspondents.

People witnessing a football game are supposed to leave behind them feelings of pity and commiseration. They come to see a battle fought by blows and strategy, and to admire all means conducing to victory. They expect to see young men lame and sore, hardly able to stand, not rarely knocked windless or senseless and carried off in the arms of comrades or on a stretcher. But all this is part of the game and no sympathy need be wasted on the victims; nay, we may even jeer at them, as did the Roman populace at the fallen gladiators. Spectators are often deeply moved, indeed, and disappointed, but not because anybody is hurt; only because their team is losing and the prestige of their favorite college is compromised; a defeat meaning, to many of them, the worst calamity that could befall the institution whose colors they wear.

President Eliot of Harvard University, in his report for the year 1901-1902, already quoted from, animadverts as follows:

"Moreover, the ethics of the game, which are the imperfect ethics of war, do not improve. The martial axiom—attack the enemy's weakest point—inevitably leads to a deliberate onslaught on the cripple or the convalescent in the opposing line; and the habitual violation of rules, if penalties be escaped, is regarded by many as merely amusing."

The friends of football contend that the evils attending the game are not inherent in it, but an unhealthy growth which can be repressed and eliminated by the enforcement of proper rules and decisions, and the judicious selection of coaches and players. I agree with them and believe that it is thus quite possible to reduce the ethical objections against football to such an extent that they will be clearly outweighed by the decided moral advantages of the legitimate game.

What are these advantages? In the circular letter, as already mentioned, the question was asked regarding the effects of football upon character. About half a dozen officers state that the game has no effect upon it, either good or bad. Only one states that the effect is bad. The great majority are of opinion that it is beneficial and that the game, under suitable supervision, is to be recommended for its good effects upon body, mind and character, not only at West Point and Annapolis but at all our colleges.

Young men who go into training for athletic games are subjected to a special regime of life, primarily intended to benefit the body but which also benefits the moral character. Self-restraint underlies it; few, if any, indulgences are permitted; no smoking, no drinking of alcoholic beverages, no dissipation. Such regime requires the exercise of will-power, and the will-power which we develop in mastering ourselves, if only for a season, is of the greatest benefit to our moral nature. Furthermore, strenuous physical work subdues passions and leaves no room for morbid or debasing thoughts.

To play football successfully, the members of the team realize that the battle must be planned by the leaders and that subordination and unquestioned obedience to those leaders are absolutely necessary. No other game inculcates more forcibly

the efficacy of discipline. The battle on the gridiron, as elsewhere, is oftener won by generalship than by mere strength. But, within certain limits, each player has more or less freedom of individual action, calling for the exercise of most useful mental qualities; clear and accurate judgment, prompt decision and immediate action. Self-control and self-denial are cardinal virtues of the football player; in the midst of provocation, foul play and insult, he must curb himself, guard his temper and keep a cool head, with an eye single to the object in view, effacing self for the sake of team victory. Thus a spirit of fairness and sportsmanship is developed, capable of appreciating prowess in the enemy, and of allowing all that fairly belongs to him without grumbling. Other manly qualities are manifestly brought into play: determination, pluck, resourcefulness, self-reliance,—all of great avail in the struggle of life.

The spectators are also doubtless benefitted along the same lines. They witness feats that border on heroism and their admiration is aroused; it is impossible to see great pluck, endurance, fine strategy and skillful team-play without an increase of our appreciation for all virile qualities, and it is in human nature to imitate what we appreciate and admire. It is true, the shouting spectator cares but little for the feelings of the disabled athlete, but he also learns to endure his own bodily ailments with more patience and fortitude.

Now it is obvious that the qualities demanded, and most likely to be developed, by football playing, are precisely those most needful to the soldier, those which on the battlefield, will stand in the best stead to the officer. Therefore, I am led to the conviction that this game, although somewhat dangerous to the body and rather seriously interfering with mental culture, is, nevertheless, to be commended, encouraged and continued at West Point and Annapolis, the good greatly preponderating over the evil at the Military and Naval academies.

As regards colleges, the case is different. There, the desirability of developing the military aptitudes is not so apparent; it is true that the same mental and ethical advantages obtain, but, so long as football is what it is, they can be cultivated in some other manner, less injurious to body and curriculum. Football,

at our great colleges, is not so easily subjected to strict control as at the above national Academies, and more likely to run into professionalism, with all its objectionable features. There is also greater loss of time to players and their fellow students; to players from the necessity, each week, of travelling variable distances to meet opposing teams, and to the other students who, every afternoon, are attracted in great crowds to the practice field.

It is true that football gives a great impulse to the esprit de corps of a college, and a rare opportunity to practice its yell, in tympanum-splitting unison. It is also believed that football prestige is a profitable advertisement, and that victory on the gridiron is followed by an increased number of matriculating freshmen. But these advantages have never yet been seriously put forward by any faculty as an argument in favor of the game.

Upon the whole, I believe that, unless the football methods now prevailing are substantially modified, it would be greatly to the benefit of college students were the game eradicated.

#### CONCLUSIONS.

To sum up, and draw such conclusions as appear warranted.

Football, as developed in this country, is an especially American game, appealing strongly to our love of the strenuous and combative arts, and therefore difficult to control and keep within safe and proper limits. Stringent rules should govern it. All trickery, unfairness and deception must be eliminated. Unless it be kept clean, sportsmanlike and gentlemanly, it has no *raison d'être*.

As regards mere physical development, better results can be obtained by graded gymnastics and less strenuous games. It is more or less dangerous to the body, and in order to reduce liability to injuries, and the possibility of disability in after-life, certain important conditions must be observed. No young man should play it who is under eighteen, and not declared physically sound after careful medical examination. He should be well developed in muscle and chest capacity for his age and height. Careful training is absolutely necessary, that is to say, an intelligent grading of work without sudden violence, so as to develop the highest degree of efficiency and endurance without harm to any of the organs. It is by overtraining or overstraining that the heart, lungs or kidneys may be permanently injured, and that

are laid the seeds of future evil. The well trained player overcomes his enemy without hurt to him or to himself; it is the beginner or blundering amateur who does most of the mischief.

Since football is positively detrimental to studies, no one should be allowed on the team who stands so low in his class that his chances of graduation would be jeopardized.

Football is mostly commendable for certain traits of mind and character which it brings forth, and which render it a valuable game for the Military and Naval Academies.

That football can, and should, be modified by the elimination of its objectionable features and thus made entirely acceptable to all educational institutions, is admitted by many, if not most, of its best friends. There should be less mass-play, with its heaps of writhing bodies; more kicking and running; more opportunities for strategy and tactics. An open game would also be much more interesting to the public. The player should not be obliged to exhibit himself in the arena, carrying fourteen pounds of armour and padding, a deformed and grotesque object. Is it possible to picture to our minds the athletes of the Olympic games in such guise?

In all inter-collegiate games, modifications or improvements, to be effective, must be participated in, and binding on, all the leading institutions; such concerted action is always slow and difficult, but certainly not impossible. College faculties, judging from their utterances, seem to regret the very great exaggeration given to athletics of recent years, especially the undue importance assumed by football, but do not appear to be taking any decisive action to correct the evil. Upon them devolves the duty of vigorous initiative.

To be really useful as a means to education, a game should be open to the majority of the students; but so much is exacted from a football player, in weight, strength and vital capacity, that few come up to the standard and a majority are debarred. The rules should be so modified as to permit the admission of youths who would make up in speed, agility and adroitness what they lack in weight of flesh. If football is good for the few it must be good for the many and should be brought to the level of all able-bodied students of normal physical development. This is especially true of West Point and Annapolis. In these institu-

tions, football should be recognized as one of the chief means of physical culture. Instead of one team in each Academy, there should be three or four, each composed of members selected from all the classes, so that the teams may be about evenly matched. The playing of team against team, in the same institution, would bring out much of the stimulus and excitement now only aroused by games with other institutions.

Were this system adopted in colleges, there would not be the same eagerness for contests with outside teams, the danger of lapsing into professionalism would be diminished, and much less time wasted.

Some of the defects of the present system are well exposed by the editor of the *Medical News*:\* "Instead of carefully training each and every student physiologically and systematically, so that his bodily defects shall be corrected and so that his body shall be a supple, strong and beautiful servant of the mind, there is a concentration of all training upon one man out of a hundred, for a special and not by any means beautiful purpose; ninety-nine let one do their exercising (excepting the vocal part) for them, and we have the noteworthy result—vicarious athletics, or gymnastics by proxy."

Since football is to a great extent, a military game and therefore well adapted to cadets and midshipmen, it does not follow that it is suited to soldiers and sailors. They have not received the thorough training which is indispensable, and, at their age, such training is hard and often impossible. Furthermore, they are less capable of the self-control and subordination absolutely necessary for a clean game. The result is that when soldiers play football the casualties are likely to be many and serious; thus in his sanitary report for November 1903, the surgeon of Fort Hamilton states that "twenty-one injuries incident to football, occurred in the command between October 9th and November 30th, embracing dislocations of the hip, dislocation of the shoulder, fracture of the collar bone, severe sprains and contusions of shoulders, knees, wrists, ankles, and muscles." Many other post surgeons have had the same experience. As a general rule, football is not for soldiers, nor for anyone who does not receive the necessary training before the end of his twenty-first year.

\*November 18, 1888.

## NOTE ON MALINGERING, WITH REPORT OF CASES.

BY LIEUTENANT SAMUEL M. DE LOFFRE,  
MEDICAL DEPARTMENT, UNITED STATES ARMY.

THE diagnosis of malingering is fraught with danger to the surgeon for several reasons: (1). The liability of error involving the working of a great injustice to a man below him in rank who must needs take the test treatment prescribed for him, (2). The possible loss of reputation as a professional man. (3). The liability of error with the consequent incurrence of the wrath of the soldier's company or troop commander, and perhaps of every other officer of the line who learns the circumstances; doctors are never forgiven their mistakes,—other men are.

A young surgeon, on entering the service, is usually the plaything of every hardened, experienced "dead beat" in the ranks. He has seen nothing like it in civil practice outside of the few hospital beats that make the rounds of the charity hospitals in large cities. Where patients do not have to pay for medical treatment by the visit, as in the army, the doctor is much in demand and often demanded, sometimes to cure disease, sometimes simply as an antidote to loneliness. Fortunately the enlisted man knows little of the real symptoms of disease, and many cases are detected immediately, simply because they are overacted; the parts they are playing are usually not sufficiently studied, and well directed remarks or suggestions from the surgeon will at once develop a new set of movements or symptoms on the part of the unsuspecting patient.

I do not wish to be quoted as believing that there is much malingering in the U. S. Army. In many cases, army surgeons are too severe with the enlisted man; often the latter may simply feel bad; he may have a slight headache or some symptoms of indigestion; he may be worrying over some family trouble, or suffering from nostalgia: We, as officers, can, under these conditions, cut short our duties for that day, or ask a brother officer to take our place while we lie down or seek consolation; they, as

enlisted men, must go on the sick report with a temporary disability that can be ascertained to exist only from subjective symptoms. We can not prove the man is not ill, nor can we prove that he is ill. The surgeon's good judgement, humanity and sympathy may do good in these cases, when harsh treatment would discourage the soldier and perhaps drive him to malingering or desertion as a last resort.

Of course there is no didactic treatment for malingering; the surgeon's ingenuity and experience must be brought into play, and the bounds of humanity should never be overreached. A good rule to follow is to order or give no treatment or test that is too severe, or that could not be used without some benefit accruing to the patient if he really had the disease he is feigning.

*Case I*—Private Stephen M. Overstreet, Troop "I," 3rd Cavalry, four months service, was admitted to the ward May 15, 1903. His case was diagnosed acute neuritis of the left median and musculo-spiral nerves, with paralysis of the extensor muscles of the left hand and wrist drop. His forearm and hand were slightly swollen and red, probably from friction, self administered. His fingers assumed a markedly flexed position, and he declared he had completely lost all power in that hand. He had fallen from a horse the day before, and had sustained this injury.

A strong suspicion gradually entered my mind that this case was one of malingering, because the acute stage of inflammation was prolonged beyond its ordinary time; on June 15th, I advised the administration of an anaesthetic and the case was immediately diagnosed. On recovering from the slight degree of anaesthesia to which he was subjected, his arm reverted to the status of paralysis. Hydro-therapy was thought advisable, and on June 17th, the wardmaster procured a tub of cold water, placed him in it after tying his well arm to his body, and told him that if he wished he could use his paralyzed arm with which to help himself out. This he did in less than five minutes. The other patients in the ward ridiculed him to such an extent that he deserted the next night, before charges could be prepared against him.

*Case II*—Private W. H. M., one month service, admitted November 16, 1903, with the diagnosis of moderate sprain of right knee, due to a fall. Dr. Wales, Dr. Pease and I agreed on this diagnosis after much discussion, with a mental reservation that the case was either one of hysterical joint or of malingering. No improvement in his condition followed, and on March 1, 1904, the man was told that a cartilage had slipped in his knee joint, and that an operation for its removal would result in a complete recovery in a few days. His knee was prepared, a slight degree of anaesthesia was induced, and a small cutaneous incision one-half inch long was made and sewed up immediately. The pain of the incision was easily felt by the patient and made the desired impression. A dressing was applied with a splint, which



remained on four days; he was then returned to duty with the firm conviction that he was cured, and has not been on the sick report since.

*Case III*—Private J. H. B., seventeen months service, admitted Feb. 20, 1904, with diagnosis of acute muscular rheumatism of lumbar and cervical muscles; he declared that the pain was so exquisite he could hardly move. He was put on the usual treatment, but showed no improvement. On making my rounds in the ward I was struck by his facial expression: one of profound depression and discouragement such as no human being but a malingerer can assume. The wardmaster, on being questioned, readily admitted seeing him in good spirits at all other times of the day, and as soon as the surgeon's back was turned. On Feb. 27th, he was told his kidneys were probably bad, and that an operation was advisable to expose them with a view to their removal if diseased. His back was scrubbed up with an extra stiff brush by a willing and muscular hospital corps man, and a bichloride dressing was applied. This ordeal proved that 'his spirit was willing and his flesh was not weak,' for the next day he declared he was no better; his manner showed however that it was simply fear of ridicule that kept him from surrendering, so the operation was performed March 1st. He was partially anaesthetized, his back scrubbed again, and acupuncture of the lumbar muscles performed with a four inch needle of large calibre, in a conscientious manner. The following day he was returned to duty with the honors of war, having proved his "nerve" and the absence of disease.

*Case IV*—Private G. K., was enlisted by me in March, 1904. Two months later he complained of severe lachrymation, burning of eyes, and inability to read his music. The test cards showed right and left vision to be 20/200. I placed him under the influence of atropine and made a careful ophthalmoscopic and retinoscopic examination, finding the eyes normal. Then the proper test lenses were applied: but no lenses or combination of lenses ever gave the same results from day to day: finally it was observed that a - 3.50 D.C. lens would give as good vision as a .25 D.S. or a plain glass. He was then put to bed in the ward with both eyes tightly bandaged and his case was investigated revealing the fact that he had told a comrade in the Band, who was going to desert, that he knew a better and less dangerous way to get out of the service,—pointing to his eyes. The bandages were left on eight days, and then he was returned to duty with a brief but emphatic statement of the opinion the writer had of his poor attempt to deceive such scientific instruments as a box of test lenses and an ophthalmoscope.

*Case V*—Trumpeter L. A., ten months service, was admitted May 14, 1904. He was brought in from the target range on a stretcher, apparently unconscious, his mouth and face covered with foam, eyes tightly closed, breathing labored, pulse and temperature normal, convulsions of right arm and leg. Doctor Parkman first saw him and noted that he resisted when an attempt was made to open his eyes. I then made pressure on his supra-orbital notch and elicited quite a grimace of pain: there were no tooth marks on his tongue and no history of injury to head, so a provisional diagnosis of

malingering was made. I had him put to bed and watched him through a window. He soon recovered sufficiently to roll a cigarette, and was smoking when I reentered the ward; on seeing me he made some passes in the air with his hands, grasped my blouse, and rolled his eyes, grossly feigning insanity. I ordered the attendant to get the restraint apparatus ready, and then explained to the patient the folly of overacting and the difficulty in feigning diseases well enough to deceive a doctor. Before I had concluded my remarks he was very quiet indeed, and no restraint was necessary. He remained on starvation diet the remainder of that day in spite of his protestations, and was returned to duty the following morning. This was the most barefaced case of malingering I have ever witnessed.

#### LOSSES IN THE MEDICAL STAFF OF THE JAPANESE NAVY DURING THE RUSSO-JAPANESE WAR.

THE *Sei-I-Kwai Medical Journal* gives the following list of accidents among the Japanese medical officers since the declaration of war against Russia: Dr. Seki, Fleet Surgeon, and Dr. Uyemiya, First Class Assistant Surgeon, were drowned at Port Arthur with the sinking of the battleship *Hatsuse* on May 15th, and Dr. Kusaka, First Class Assistant Surgeon on board the *Yoshino*, met the same fate by the sinking of that cruiser on the same day. On the 20th of the same month, Surgeon Koike, on board the *Akatsuki*, was killed by a fragment of shell at Port Arthur. Dr. Ishikawa, First Class Assistant Surgeon, on board the *Hayatori*, was also killed by a shell fragment on September 3. Dr. Nishiuchi, Chief Surgeon of the *Heiyen* was drowned, when that gun-boat was sunk off Port Arthur on September 18th. Besides these six medical officer, one chief medical attendant and eight medical attendants were killed or drowned, and four medical attendants wounded. Surgeon Minobe, Surgeon Kazu, and First Class Assistant Surgeons Nunogami, Miyagawa, Watanabe and Uemori were wounded but all of them recovered soon after and are now serving respectively on ship or land. Six surgeons have been attacked by infectious diseases: Fleet Surgeon Satake, Surgeon Yano, Surgeon Miyao, and First Class Assistant Surgeon Kasamatsu were admitted to Hospital for dysentery, while First Class Assistant Surgeon Nakano and probationary Assistant Surgeon Orimo were admitted for typhoid.

## Contemporary Comment.

### THE MILITARY HYGIENE OF DYSENTERY.

By MANUEL M. SALAZAR,

MEDICAL OFFICER IN THE SPANISH ARMY.

ANGLICIZED BY LIEUTENANT CHARLES NORTON BARNEY,

MEDICAL DEPARTMENT, UNITED STATES ARMY.

**I**N 1898, at the very time Spain was losing so many of her soldiers from epidemic dysentery in Cuba and the Philippines without knowledge of any certain means of differentiating the disease from the numerous other intestinal affections which were found there and without knowledge of any means of establishing a truly effective prophylaxis, the Japanese, Shiga, a pupil of the accomplished Kitasato, discovered the specific germ of this malady and established the basis for certain microbiologic diagnosis and rational hygiene, especially applicable to military medicine.

Other investigators had previously so often announced other bacteria as causes of dysentery that Shiga's discovery was not at once accepted; but in 1900 it was confirmed by Krause in an epidemic among laborefs in Westphalia, and by the Americans Strong and Flexner in Manila and Porto Rico; later by Pfuhl in the German troops of the China Expedition; and still later by Drigalsky, Mueller and others, in other epidemics. Finally at the "Institut fur Infections Krankheiten," Berlin, of which Prof. Koch is the director, Martini and Lentz have demonstrated, by means of cultures obtained from Shiga, Krause, Strong, Flexner and Pfuhl, that the bacilli which were found by these investigators in epidemic dysentery in Japan, Germany, the Philippines, Porto Rico and China are essentially the same.

This confirmation of Shiga's discovery has put an end to the confusion which has existed up to this time in the etiology and classification of dysenteries. There is a fundamental difference

in etiology and pathological anatomy between amoebic dysentery—the variety which is so often associated with abscess of the liver—and bacillary dysentery. Undoubtedly there are other intestinal affections which resemble bacillary dysentery and will later be found to be due to other causes; but nevertheless, Shiga's discovery has caused a great advance in the diagnosis and prophylaxis of that form of dysentery which is of the most importance to military medicine.

The bacillus of epidemic dysentery belongs to the group of the colon bacillus and the typhoid bacillus. It is a rod with rounded ends, as long as the typhoid bacillus, but thicker. The bacilli have a tendency to lie side by side in groups, which often contain many degenerative forms. The bacillus multiplies readily in the ordinary culture media, but degenerates more quickly in liquid media than in solid. It does not form spores. The cultures give out a slight spermatic odor. The bacillus stains well with the ordinary anilin colors and is decolorized by gram. The most salient characteristic which differentiates it from the colon and typhoid bacilli is that it has no flagellae and is non-motile. In hanging drop preparations it exhibits only a slight molecular vibration, which should not be confounded with the free movement from place to place which is exhibited by the other two—especially by the typhoid bacillus. Its cultural characteristics more nearly resemble those of the typhoid bacillus than those of the bacillus coli. It does not give rise to indol, and it does not ferment lactose. On alkaline potato it grows as a yellowish film. It does not liquefy gelatin. Its colonies, in this medium, have some resemblance to those of the typhoid bacillus, but are not as delicate in details of form, in color and transparency.

One of the things which have surprised me most in working with this bacterium is the ease with which it degenerates and dies, especially in liquid media, and the slowness of its resistance to disinfection. In pure cultures it scarcely lasts a month. In the stools it dies in 48 hours. In drinking water and milk it does not last longer than 8 days. In sand or dry earth, 12 days. In clothing impregnated with pure cultures it lives about 17 days. Direct sunlight kills it in half an hour. In boiling water it re-

sists only a few minutes, and in water at 58 degrees C. it dies in an hour. In a 1 to 20,000 solution of sublimate, and even in five per cent alcohol, it disappears rapidly.

But on the other hand, in the human body—in the intestinal mucosa of dysenterics—it will live and grow with a most discouraging persistence, which accounts for the difficulty of cure in these cases, the long course of the malady and the tendency to relapse.

From these facts we may draw a conclusion which is of importance in prophylaxis, viz. : that there is greater danger of infection in persons than in things.

The bacillus is being constantly thrown off in the stools, and these are the infecting medium—the source of epidemics.

The chief lesion in bacillary dysentery is a coagulation necrosis or diphtheroid inflammation of the mucosa of the large intestine, sometimes extending for a short distance into the small intestine. The specific bacillus is found in the sloughs, and never reaches beyond the mesenteric glands. It is not found in the blood, nor in the spleen nor in the urine, nor in any other organ or tissue, but the intestine and mesenteric glands. All lesions of other organs, kidneys, liver, etc., are produced by toxins absorbed from the infected intestine.

The fact that bacillary dysentery is not, like typhoid, a septicæmia, but, like diphtheria, a toxæmia dependent upon a localized infection, gives hope that serum therapy may be more effective in this disease than it is in typhoid.

The agglutinating power of the blood serum appears rather late in the course of the disease, but in the application of the serum reaction to the investigation of the bacteriology of the stools we have ready means of definitely diagnosing these cases early, so that, as Koch points out, there is no longer any need of our relying on the purely defensive tactics which we have heretofore resorted to in fighting epidemics of dysentery. We can do more than proceed only against those cases which come to our notice. We can adopt more aggressive tactics. We can go out and look for cases, and, with the bacteriological means now at our disposal, we can definitely determine within 24 hours the presence or absence of the specific bacillus in any case which is suspected of harboring it.

It is with dysentery as it is with typhoid and with cholera,—the most dangerous patients are not those which are prostrated in bed and almost unavoidably become the object of every kind of precaution, but those others which, with a slight diarrhoea, an abortive attack or an ill defined convalescence, are up and about among the well, scattering broadcast the seeds of their disease.

The early diagnosis of suspected cases can now be made as follows: In some cases the Shiga bacillus can be found in almost pure culture by simple microscopic examination of the mucus from the stools, but in any case bits of the mucus, after being washed in sterile water, can be sown on plates in a special culture medium which will favor rapid development and easy differentiation of the colon-typhoid group of bacilli and at the same time delay the growth of other germs. This culture medium, as prepared by Drigalsky and Conradi, consists of ordinary agar to which is added neutrose, lactose, tornasol blue and crystalline violet. Professor Wassermann leaves out the violet in order to favor the more rapid development of the dysentery bacillus. After the plates have been incubated at 37°C for twenty-four hours, they are examined. As the colon bacillus forms lactic acid from lactose its colonies appear red, on account of the action of this acid on the tornasol blue. Colonies of typhoid and dysentery bacilli remain blue, and the latter can easily be differentiated from the former by characteristics which have already been mentioned,—by their non-motility in hanging drop preparations, and above all their agglutination reaction with the serum of patients suffering with, or convalescent from dysentery, or to the serum of animals which have previously been immunized against the dysentery bacillus.

By this means, in the face of an epidemic of dysentery we can now fix the diagnosis in contacts and suspects within twenty-four hours; and if we begin the investigation early enough, if we prosecute it on a large enough scale, and if we institute at the same time and on the same scale the prophylactic measures which are the corollary of our knowledge of the means by which the disease is spread, viz., isolation of dysenteric patients and convalescents, disinfection, especially of the stools, purification of water and food, prevention of overcrowding, etc., we can cut the epidemic short.

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DR. SAMUEL PRESTON MOORE,  
SURGEON GENERAL, CONFEDERATE ARMY.—1861-1865.



## Editorial Expression.

### The Surgeon General of the Confederate Army.

DR. SAMUEL PRESTON MOORE, SURGEON GENERAL,  
OF THE CONFEDERATE ARMY.—1861-1865.

**R**EAL as was the problem of 1860 to southern civilians it was infinitely more desperate to the officers of southern birth who wore the uniform of the United States service. The gun which boomed out the tocsin of state rights in Charleston harbor brought many a conscientious heart into the most painful of dilemmas. Of those whose native states declared in favor of secession from the Union, many determined to stand by the colors under which they had been serving, but many more, and by far the larger number believed that they were responding to the call of undeniable duty in going with their states. Among the most distinguished officers who took this step was Major Samuel Preston Moore, Surgeon in the United States Army, who at the time of the inauguration of hostilities between the North and South was on duty as Army Medical Purveyor at New Orleans, and who some months later was appointed Surgeon General of the Confederate forces.

Dr. Moore was born in Charleston, South Carolina, in 1813 to Stephen West Moore and Eleanor Screven Gilbert, his wife, and was a lineal descendant of Dr. Mordicai Moore who came to America in the train of Lord Baltimore as his physician. His family was connected with many of the distinguished personages of early American history and two of his brothers also held commissions in the ante-bellum United States Army,—Colonel West Moore and Dr. Charles Lloyd Moore. His early education was acquired at his home town where he also graduated in medicine from the Medical College of the State of South Carolina on March

8th, 1834. Soon thereafter, March 13th, 1835, he obtained an appointment as Assistant Surgeon in the Army, and at once entered upon a long western service at Fort Leavenworth, Fort Des Moines, Fort Gibson, Mo., and Fort Coffey, Kans. He then went to Florida where he served at various stations closing his tour of duty at Camp Barrancas near Pensacola, which he found garrisoned by a detachment of the Seventh Infantry under command of Major Jacob Brown who afterwards died of wounds received in defense of the works at the mouth of the Rio Grande river, since known in his honor as Fort Brown. Major Brown's home was made attractive by two daughters, one of whom became the wife of General Stewart Van Vliet while the other captured the heart of young Dr. Moore, became his wife in June 1845, and his constant companion until his death.

The following August saw him en route with troops to Aransas, Corpus Christi and the Nueces River, in the territory then in dispute between Texas and Mexico, and in preparation for the Mexican War. His services in these operations lay altogether along the Rio Grande and most of the time at Camargo, a Mexican town opposite the post in Texas now known as Fort Ringgold. At the close of the war he took station at Jefferson Barracks and on April 30, 1847 attained the rank of Major which he retained until his resignation from the United States service in 1861. He was on duty with troops detailed to guard the transcontinental emigration of 1849, and passed two years at Fort Laramie. In 1852 he returned to Texas and, after a few months at San Antonio, proceeded to Fort Brown where he remained for the ensuing two years. Thence he repaired in 1854 to Governor's Island but after a year proceeded to West Point where he remained until April, 1860, at which time he was placed in charge of the Medical Purveying service in New Orleans.

In common with the majority of army officers he had never actively engaged in political discussion, but he shared to a high degree in the loyalty to his native state which animated so many of his comrades and passed many hours in anxious reflection upon his duty in case of the secession of South Carolina from the Union. Home ties, however, finally prevailed and when his

state withdrew its allegiance to the government of which it had formed a part, he too resigned his commission and retired to Little Rock, Arkansas, with a view to establishing his residence there, and engaging in the practice of his profession.

It was not a period however when trained military men could hide themselves from the loud demand for them and it was not long before Dr. Moore was so beset with appeals from his friends and requests from the authorities to participate in the operations then opening up, that in June 1861, he yielded to the pressure to which he had been subjected and accepted the Surgeon Generalcy of the Confederate Army. He found himself from the first confronted with enormous difficulties. The South had no trained military medical corps to attend its troops nor to serve as a nucleus about which the service of the disabled could be aggregated. Many of the brighter of her medical men preferred to seek glory at the cannon's mouth rather than in the corridors of the hospital. The Geneva convention then had not neutralized the medical service and medical supplies, and it was always difficult and often impossible to obtain the customary agents, instruments or dressings for the treatment of the sick and wounded.

He promptly set to work to organize a medical department. Examinations were prescribed by which the incompetent were excluded and eliminated from its personnel. A system of assignment was established, suitable reports were provided for, and order was brought out of what had been as near military medical chaos as possible. He recognized the advantage of discussion and mutual contact among his officers and in furtherance of this idea organized in August, 1863, at Richmond, the "Association of Army and Navy Surgeons of the Confederate States," and became the first President. He was also active after the war in a similar association organized in 1874, of which he was also elected President, and before which at Richmond in 1875 he gave a valuable presidential address upon the Medical Department of the Confederate Army.

Blockades and the enemy's lines cutting off the obtaining of supplies from other countries, he set to work to utilize the resources, afforded by his own territory. Careful attention was paid to

the preparation of drugs from plants indigenous to the southern soil; laboratories were established for their preparation; and depots were located for the distribution of the products thus manufactured.

Books too were scarce and he had prepared under his own personal supervision a "Manual of Military Surgery," which was published in 1863 and distributed to the forces. In 1864 he inaugurated the publication of "*The Confederate States Medical and Surgical Journal*," for the information of his corps, which had a brilliant career of a little over a year.

He organized and equipped many hospitals and for him is claimed the distinction of the introduction of the hut and one-story pavilion hospital which attained so great a vogue in both the southern and northern armies, and stands still as the best model for hospital construction yet devised.

After the close of the war with the north and the consequent disbandment of the Confederate Army, Dr. Moore remained in Richmond, not engaging in active medical practice, but interested mainly in agricultural and educational matters, being for many years a member of the board of managers of the State Agricultural Society and of the Richmond school board. In the latter work he was especially active, endeavoring to lift public education from the realm of politics and to establish it on the best scientific and highest moral plane. This he continued for nearly a quarter of a century, when, on May 31, 1889, he quietly passed away at his West Grace Street home in Richmond.

"In person, he was," says Lewis,\* "above medium stature, well formed, erect and of soldierly bearing; regular, handsome features, not austere but subdued by thought and studious habits. With acquaintances he was genial, having a pleasant brightness, and a keen but harmless wit. In official life a strict disciplinarian, but appreciative of faithful service. He was always extremely modest in referring to his own work and only alluded to it at comparatively long intervals and upon the most intimate occasions. That he spared not himself the best testimony is the high renown he won for himself and his faithful corps with

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\*Samuel Preston Moore, Surgeon General of the Confederate States. By Samuel E. Lewis, M.D. *Southern Practitioner*, August, 1901.

the medical world, which has justified the wisdom of his selection for the duties imposed upon him; and also by the loving regard felt for him in recognition and appreciation of his services, by all the people of his beloved Southland."

The portrait with which this sketch is illustrated we owe to the courtesy of Dr. Deering J. Roberts of Nashville, Secretary of the Association of Medical officers of the Army and Navy of the Confederacy and Editor of the *Southern Practitioner*. No portrait of Dr. Moore in uniform as Surgeon General is in existence for the very excellent reason that none was ever made. As a matter of fact he never had such a uniform. He ordered one from England during the earlier days of the War but the privateer which had it on board was sunk by the enemy and he had no opportunity to obtain another.

#### ARMY MEDICAL CORPS EXAMINATIONS.

**P**RELIMINARY examinations for appointment of Assistant Surgeons in the Army will be held on May 1st and August 1st, 1905, at points to be hereafter designated. Permission to appear for examination can be obtained upon application to the Surgeon General, U. S. Army, Washington, D. C., from whom full information concerning the examination can be procured. The essential requirements to securing an invitation are that the applicant shall be a citizen of the United States, shall be between twenty-two and thirty years of age, a graduate of a medical school legally authorized to confer the degree of doctor of medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training or its equivalent in practice. The examinations will be held concurrently throughout the country at points where boards can be convened. Due consideration will be given to the localities from which applications are received, in order to lessen the traveling expenses of applicants as much as possible. In order to perfect all necessary arrangements for the examinations of May first, applications must be complete and in possession of the Surgeon General on or before April first, and for the examination of August first, on or before July first. Early attention is therefore enjoined upon all intended applicants. There are at present twenty vacancies in the Medical Corps of the Army.

## News of the Services.

Dr. George W. Adair, U.S.A., granted two months leave.

Dr. Everett A. Anderson, U.S.A., ordered from Georgetown, Ky., to the Philippines.

Assistant Surgeon J. W. Backus, U.S.N., ordered to the Portsmouth Naval Hospital and additional duty on the Southery.

Surgeon C. P. Bagg, U.S.N., ordered from the Mare Island Hospital to Guam.

Assistant Surgeon W. H. Baker, U.S.N., ordered from the Brooklyn to the San Juan Naval Hospital.

Surgeon C. H. Barber, U.S.N., ordered from the Newport Naval Training Station to the Ohio.

Assistant Surgeon L. W. Bishop, U.S.N., ordered from the New York Naval Hospital to the New York Navy Yard.

P. A. Surgeon F. M. Bogan, U.S.N., ordered from the Decatur to the Yokohama Naval Hospital for treatment.

Lieutenant Louis Brechemin, Jr., U.S.A., granted thirty days leave.

Dr. Marshall Clinton, of Buffalo, N.Y., has been commissioned Captain and Assistant Surgeon of the 65th Regiment, N.G.N.Y. Captain Clinton, during the Spanish War, was Assistant Surgeon of the 202nd N.Y.V.I.

Surgeon R. P. Crandall, U.S.N., ordered from the New Orleans to wait ing orders.

P. A. Surgeon H. C. Curl, U.S.N., ordered from the Isthmian Canal Commission to the Boston.

Lieutenant Colonel William B. Davis, U.S.A., promoted to Lieutenant Colonel, January 19, 1905.

Assistant Surgeon H. A. Dnnn, U.S.N., granted six weeks leave.

Acting Assistant Surgeon B. Elmore, U.S.N., appointed January 24, 1905, and ordered to the Washington Naval Hospital.

Assistant Surgeon C. F. Ely, U.S.N., ordered from the Naval Academy to the Marine Detachment on the Isthmus.

Captain Clyde S. Ford, U.S.A., who is actively engaged upon the subject of a motor ambulance, is ordered from Fort Barrancas to Ormond, Fla., in connection therewith.

Assistant Surgeon Edward Francis, P.H.&M.H.S., granted one month's leave.

Acting Assistant Surgeon A. C. Fraser, P.H.&M.H.S., resigned January 31, 1905.

Assistant Surgeon Wade H. Frost, P.H.&M.H.S., appointed Assistant Surgeon and ordered to Baltimore, Md.

Assistant Surgeon A. J. Geiger, U.S.N., ordered from the Prairie to the Port Royal Naval Station.

Dr. William R. S. George, U.S.A., returned to San Juan, P. R. from detached service at Cayey.

Colonel Alfred C. Girard, U.S.A., granted two month's leave.

Surgeon W. B. Grove, U.S.N., ordered to the Chelsea Naval Hospital.

Surgeon A. G. Grunwell, U.S.N., ordered to the New York Naval Hospital when discharged from treatment there.

Lieutenant Samuel C. Gurney, M.N.G., appointed Assistant Surgeon 1st Michigan Infantry.

P. A. Surgeon J. A. Guthrie, U.S.N., ordered to the Dixie.

P. A. Surgeon M. K. Gwyn, P.H.&M.H.S., granted four months leave.

Medical Director G. E. H. Harmon, U.S.N., promoted from Medical Inspector.

Lieutenant Colonel Julius F. Henkel, Chairman of the Committee of Arrangements for the next meeting of the Association has been promoted from Major of the 1st Infantry Mich. N. G., to Lieutenant Colonel and Brigade Surgeon of the 1st Brigade, Mich. N. G.

Medical Inspector L. C. Henneberger, U.S.N., ordered from the Olympia to waiting orders.

Dr. John M. Hewitt, U.S.A., ordered from Kewanee, Ill., to the Philippines.

Medical Inspector C. T. Hibbett, U.S.N., promoted from Surgeon.

Assistant Surgeon W. E. C. High, U.S.N., ordered from the Midway Islands to the San Francisco Naval Training Station.

Colonel John Van R. Hoff, U.S.A., ex-President of the Association of Military Surgeons, promoted to Colonel, January 19, 1905.

Dr. Thomas G. Holmes, U.S.A., ordered to Fort Sheridan on temporary duty.

Major Vernon J. Hooper, M.N.G., promoted from Captain and Assistant Surgeon to be Surgeon of 1st Michigan Infantry.

Lieutenant George W. Jean, U.S.A., granted two months leave of absence.

Director General Alfred H. Keogh, M.D., C.B., R.A.M.C., has succeeded Sir William Taylor at the head of the Royal Army Medical Corps. General Keogh is under fifty years of age and distinguished for his energy and ability.

Dr. Robert Lemmon, U.S.A., ordered from Fort Terry to Fort Wadsworth on temporary duty.

P. A. Surgeon J. F. Leys, U.S.N. ordered home from Guam.

A. A. Surgeon W. J. Linley, P.H.&M.H.S., granted one month's leave.

Lieutenant William L. Little, U.S.A., ordered from Fort Oglethorpe to Jackson Barracks.

A. A. Surgeon E. F. McConnell, P.H.&M.H.S., granted one month's leave.

Major C. C. McCulloch, Jr., U.S.A., promoted Major, January 19, 1905.

P. A. Surgeon Paul E. McDonnold, U.S.N., ordered to the Washington Naval Dispensary.

Surgeon G. M. Magruder, P.H.&M.H.S., granted one month's extension of sick leave.

Lieutenant George W. Mathews, U.S.A., retired as Captain.

Dr. Marion F. Marvin, U.S.A., granted one month's extension of leave.

Assistant Surgeon G. M. Mayers, U.S.N., ordered to the New York Naval Hospital.

Captain John E. Mead, M.N.G., promoted to Captain from Lieutenant and Assistant Surgeon 1st Michigan Infantry.

Surgeon V. C. B. Means, U.S.N., ordered from the Philadelphia Naval Hospital to the San Francisco Recruiting Station.

Assistant Surgeon J. Miller, Jr., U.S.N., ordered from the Isthmus of Panama to the Boston.

Acting Assistant Surgeon J. A. Moncure, P.H.&M.H.S., granted one month's leave.

Assistant Surgeon Eugene H. Mullan, P.H.&M.H.S., appointed Assistant Surgeon and ordered to Stapleton.

Assistant Surgeon F. M. Munson, U.S.N., ordered from Olongapo to Guam.

Dr. Francis S. Nash, U.S.A., granted four months leave.

P. A. Surgeon, H. E. Odell, U.S.N., ordered to the New York Naval Hospital.

Dr. Joseph A. O'Neill, U.S.A., was killed in action at San Francisco de Malabon, Philippine Islands, during an attack of ladrones, January 24, 1905.

Major William O. Owen, U.S.A., ordered from Fort Logan to the Presidio General Hospital for treatment.

P. A. Surgeon R. W. Plummer, U.S.N., ordered to the Charleston Navy Yard.

P. A. Surgeon T. F. Richardson, P.H.&M.H.S., ordered to temporary duty at the Savannah Quarantine.

Dr. Frederick W. Richardson, U.S.A., died at Ligao, Albay, Philippine Islands, January 26, 1905, of accidental wood alcohol poisoning. Dr. Richardson was an Active Member of the Association of Military Surgeons.

Medical Director John W. Ross, U.S.N., detached from duty under the Isthmian Canal Commission.

Dr. Joseph L. Sanford, U.S.A., ordered from Clifton, Va., to the Philippines.

Lieutenant Robert Smart, U.S.A., transfer from Fort Dupont to Fort Sheridan revoked and assigned to duty at Fort Myer.

Surgeon R. K. Smith, U.S.N., resignation accepted to take effect February 28.



Surgeon John M. Steele, U.S.N., ordered from the Colorado to the Olympia.

Assistant Surgeon Jacob Stepp, U.S.N., ordered to the Constellation and the Newport Naval Training Station.

Dr. J. L. Taylor, U.S.N., appointed Assistant Surgeon U.S. Navy.

Lieutenant Henry D. Thomason, U.S.A., ordered for examination for promotion.

Acting Assistant Surgeon F. W. Tyree, U.S.N., ordered from the Charlestown Navy Yard to Midway Island.

Surgeon L. L. Von Wedekind, U.S.N., ordered to the Newport Naval Training Station with additional duty on the Constellation.

Major George M. Wells, U.S.A., ordered home from the Philippines, February 11, 1905

Medical Director Howard Wells, U.S.N., promoted from Medical Inspector.

Lieutenant Robert N. Winn, U.S.A., ordered for examination for promotion.

P. A. Surgeon R. B. Williams, U.S.N., ordered from the Norfolk Naval Hospital to the West Virginia.

Surgeon G. B. Wilson, U.S.N., ordered from the Chelsea Naval Hospital to the Colorado.

Captain James S. Wilson, U.S.A., ordered from Fort Myer to Fort Oglethorpe.

P. A. Surgeon R. L. Wilson, P.H.&M.H.S., granted one month's leave.

Dr. Stephen Wythe, U.S.A., ordered to Fort Baker, Cal.

DELEGATES TO THE XV INTERNATIONAL MEDICAL CONGRESS AT LISBON.—Members of the Association of Military Surgeons contemplating attendance upon the Lisbon International Medical Congress, and desiring to be appointed as delegates, are requested to make early application to the Secretary for credentials.

COMPARISON OF THE MEDICAL DEPARTMENTS OF THE AMERICAN AND JAPANESE ARMIES.—The *Baltimore Sun* in an exceedingly strong editorial remarks that, "We have here in the United States the men of training, skill, courage and professional zeal to form an Army Medical Corps unsurpassed in the world, but we lack the intelligence to understand that to be efficient from first to last in war it must be organized, trained and maintained in time of peace. That is in reality the only lesson with regard to medical service that we have to learn from Japan. When we have taken it to heart we can duplicate her finest achievements and probably surpass them."

THE AMERICAN NATIONAL RED CROSS.—At the first meeting of the American National Red Cross, under the new charter recently granted it by Congress, the following officers were elected: *President*, Secretary of War William H. Taft; *Treasurer*, Assistant Secretary of the Treasury C. H. Keep; *Counsellor*, Assistant Attorney General Louis Pratt; *Secretary*, Charles L. McGee; *Executive Committee*, Assistant Secretary of State Francis B. Loomis; Brigadier General George B. Davis, U.S.A.; Medical Director

John C. Boyd, U.S.N.; Chief of the Bureau of Corporations James R. Garfield; Ex-Secretary of the Navy Hilary A. Herbert; Miss Mabel Boardman and Surgeon General Walter Wyman, P.H.&M.H.S. Plans for reorganization and development of the work were discussed and the formation of the state societies provided for in the Act of Incorporation was considered. It will be observed that the Medical Department of the Army is not represented, a singular situation in view of the prominence of the military surgeons of other countries in similar organizations.

**THE ARMY MEDICAL REORGANIZATION BILL IN THE HOUSE.**—The Military Committee of the House reported on February 16th the Army Medical Reorganization Bill with some modifications, and it is probable that the Bill will pass the House in this form. The number of officers in the several grades is reduced from 16 Colonels, 24 Lieutenant Colonels and 110 Majors, to 12 Colonels, 18 Lieutenant Colonels and 85 Majors; the number of Captains and Lieutenants remains at 300 as originally provided. The wording of the Bill is changed to provide that these officers shall have the rank, pay and allowances "as now provided by law" instead of "corresponding grades in the Cavalry arm of the Service." The period of service as First Lieutenant is made five years instead of three, and the provision for examinations for promotion for officers above the grade of Major is omitted, while it is provided that any officer of the Medical Reserve Corps who declines duty when called to the colors shall be honorably discharged. It is more than likely that some of these provisions will be changed when the Bill passes the House and goes to conference. The Bill, as finally passed, will be published in the *JOURNAL* in full.

**THE RUSSIAN ARMY MEDICAL SERVICE IN MANCHURIA.**—In an interesting article in the *Outlook*, George Kennan presents a series of quotations from observers of the situation in Manchuria, all of which are agreed as to the disorganization existing there. Mr. Demchinski, a prominent Russian publicist, remarks concerning a so-called "sanitary train without special appliances," which he saw in Manchuria, that it had been en route with 868 sick and wounded men for three days, during which time the sick had had nothing to eat, no place for cooking being provided. From that time the train was still eighteen hours in reaching its destination where it arrived at midnight when it was impossible to unload or feed the sick. In order to accommodate the 868 men they had to be put on "nares" or platforms, in two tiers, one above the other. There was not a single medical man, attendant or nurse on the train. When the patients from the upper berths rolled down upon those in the lower, as frequently occurred, there was no one to put them back in their places. In two of the cars there were forty-eight typhoid fever patients, and when the conductor asked the authorities for at least one attendant to care for them because of their tossing about in delirium and often trying to throw themselves out of the train when in motion, the request was denied. The statements of still other observers report that the corruption in connection with the funds for the care of the sick and wounded is indescribable, that the handling of the wounded is managed with shocking carelessness and haste, and that the means of identification are deficient and defective in the extreme.

## Current Literature.

### ANEMIA IN PORTO RICO.\*

**T**HIS report, which consists of two books, one in English and one in Spanish, but bound in the same cover, is a complete account of the research of the Porto Rican official commission which has been making extensive studies into ankylostomiasis or uncinariasis, and presents a careful and complete study of the subject comprising the history, the etiology, the symptomatology, the pathology, the course, progress and lethality, the diagnosis, the prophylaxis and the treatment, each of which is discussed in much detail.

### VON BERGMANN'S SURGERY.†

**T**HE fifth and the final volume of this system of surgery has been published and is ready for delivery. It describes the surgery of the pelvis and genito-urinary organs. The same excellence that has been shown in the previous volumes is found in this one, except that the surgery of the prostate has received scant attention, and does not conform to the present knowledge on this subject. The other articles will be found very satisfactory to the reader. We congratulate the editors and publishers on their success, and yield to them great praise in presenting to American surgeons, a work so valuable and filling a place so long vacant.

A. R. ALLEN.

\**Report of the Commission for the Study and Treatment of "Anemia" in Porto Rico.* Authorized by Act of the Legislative Assembly. Official document, in English and Spanish. By Captain BAILEY K. ASHFORD, U.S.A., P. A. Surgeon W. W. KING, P.H.&M.H.S., and Dr. P. G. IGARAY-IDEZ. 8vo.; pp. 321. San Juan, Government Printing Office, 1904.

†*Von Bergmann's Surgery.* A System of Practical Surgery. Drs. E. VON BERGMANN, of Berlin, P. VON BRUNS, of Tübingen, and J. VON MIKULICZ, of Breslau. Edited by WILLIAM T. BULL, M.D., of New York. Complete work in five imperial octavo volumes, containing 4220 pages, 1976 engravings and 102 full page plates in colors and monochrome. Volume V, 789 pages, 354 engravings, 23 plates. Philadelphia and New York. Lea Brothers & Co., 1904.

## THE BARTON FIRST AID TEXT BOOK.\*

**T**HIS little book is an indication of the activity of first aid work in Boston and it is to be heartily welcomed to the number of means of instruction in the important subject of which it treats. It is brief and succinct, easily carried in the pocket, and by its simplicity and accuracy commends itself to the use of the laity for whom it is designed.

## A MEDICAL NOVEL.†

**T**HIS successful essay in the field of fiction by Prof. Samuel Walter Kelley of Cleveland, Ohio, who achieved a most excellent record as Major and Brigade Surgeon during the Spanish-American war, and whose professional, editorial and literary work is well known, is worthy of especial remark. Major Kelley's style is readable and attractive. His diction is pure and clean and it goes without saying that the references to medical and pathological conditions in the book are correct as is rarely the case in modern fiction. We congratulate Major Kelley upon his success and trust that the work will have the extensive sale which its genuine merit really deserves.

## A LABORATORY MANUAL OF HUMAN ANATOMY‡

**T**HE Laboratory Manual now displaces the Dissectors' Handbooks of previous days as the anatomical laboratory, with its many departments, has displaced the malodorous and ill kept dissecting room of former years. The work of Prof. Barker is a distinct advance upon any treatise of the kind that has yet come under the writer's notice. It is remarkable for its clearness and distinctness. It is not too full nor is it too scant, but it seems to clearly fulfill its function as an accessory and adjunct to the larger text-books to which the student must devote himself in order to become fully acquainted with the structure and functions of the human body.

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\***The Barton First Aid Text Book.** A Manual for the Student in First Aid. By Lieutenant H. H. HARTUNG. Arranged and illustrated by ROSCOE G. WELLS. 16mo.; pp. 82., with twelve illustrations. Boston, The New England First Aid Association, 1904.

†**In the Year 1800.** Being the relation of sundry events occurring in the life of Doctor Jonathan Brush during that year. By SAMUEL WALTER KELLEY, M.D. 8vo.; pp. 421 with 4 plates. Being Volume 3 of the *Doctor's Recreation Series*. Akron, Ohio. The Saalfeld Publishing Co., 1904.

‡**A Laboratory Manual of Human Anatomy.** By LEWELLYS F. BARKER. M.B. 8vo.; pp. 583. With numerous illustrations in black and colors: Philadelphia and London. J. B. Lippincott Co., 1904.

## Original Memoirs.

AUTHORS ALONE ARE RESPONSIBLE FOR THE OPINIONS  
EXPRESSED IN THEIR CONTRIBUTIONS.

### THE PROPOSED MEDICAL RESERVE CORPS FOR THE ARMY vs. MAJOR AZEL AMES' OPINIONS.

BY MAJOR WILLIAM C. BORDEN.  
SURGEON IN THE UNITED STATES ARMY.

**I**N the February number of the JOURNAL OF THE ASSOCIATION OF MILITARY SURGEONS, a paper was published entitled "A Medical Reserve Corps for the Army of the United States," by Major Azel Ames.

In this paper there are statements which directly arraign the motives and actions of the Surgeon General of the Army and of the Regular Medical Department. These statements are such that they would not be worthy of attention were it not for the fact that they appeared in the official organ of the Association, and for this reason might mislead members of the Association, who are not fully informed as to the purpose and intent of the Bill for the Reorganization of the Medical Department of the Army, now before Congress, known as Senate Bill 4838, and House Bill 13998.

The statements made by Major Ames and which the writer directly calls in question, quoted from his article, are as follows:

"The avowed desire and purpose of the Surgeon General to \* \* \* is such painful *reassertion*\* of the old-time self-sufficiency and autocracy of the War Office and its Medical Department \* \* \* 'as has been so *regrettable*,\* *offensive*,\* and *injurious*\* in the past.'"

"\* \* \* to *deliberately create*\* a body of *inferiors*\* (The Medical Reserve Corps) to perform subordinate labors, and to

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*Italics the writer's.*

*designedly*\* keep that body ignorant of other duties that a select few may retain command, savors intolerably of stigma and servitude."

"It is *proposed*\* to *keep* him (The Medical Reserve Officer) ignorant of what it is conceded he ought to know, and *because he is so*, to *deprive him*\* of the "authority, rights and privileges" of a medical officer of his rank (which the bill expressly says shall be his) and to utilize only certain abilities he is *presumed*\* to possess."

"It is an open *declaration*, that it is the *desire*\* and *purpose*\*

\* \* \* to kindly assign to the Assistant Surgeons of the proposed Reserve Corps \* \* \* *only* the *professional* duties incident to the care of the sick and wounded, and to limit them to a service which, in the intent and manner of its assignment, would be grossly invidious, and practically would be servitude, *if it were practicable*."

"We are informed too, that the Army Medical School, though created by the People, paid for by the People, and designed for the instruction of the Medical Officers of the Army of the People, will not be utilized for the education and benefit of any save a *few chosen servants of the People who hereby assume to say*\* what their masters, the People, shall do with their own."

"\* \* \* the bill tells, all too plainly, of *broken faith*\*, lowered standards, the desertion of high and broad ideas and great opportunities, to less worthy, narrow and *personal considerations*\*, and breathes anew the old typical, dominant spirit of Bureaucratic, dogmatic *self-seeking*\* and self-assertion."

"\* \* \* this Bill, though doubtless unfailingly just and liberal to the regular army medical staff, its needs and desires, and carrying the approval of the Secretaries—*according to the lights lent them by those interested*\*—sadly fails in the presence of the first great opportunity \* \* \*."

These statements directly or inferentially charge the Surgeon General of the Army, and certain members of the regular Medical Department, not named, with

- 1 Broken faith.
2. Self-seeking.

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\*Italics the writer's.

3. With misleading the Secretaries of War.
4. With deliberate intent to degrade certain members of the medical profession.
5. With deliberate intent to evade and not comply with the law of the land.

One "needs to take a long breath" after these most extraordinary statements, statements which ascribe questionable motives and actions to a Department of the Government which has given to the country and the Medical Profession the work of Beaumont, Letterman, Otis, Woodward, Billings, Sternberg and Reed, as well as the unfailing patriotism and labor for the public good of hundreds of others, who, while not so well known to fame, have always worked faithfully and conscientiously for the advancement of medical science and their country's welfare.

Certainly such statements should neither be made by a member of the Association nor published in its official journal unless supported by *undoubted proof*.

But upon what are these extraordinary statements based? Only upon the following facts and *Major Ames' deductions* therefrom.

1. That the proposed Bill does not provide for the *general education* of the officers of the Reserve Corps.
2. That the Reserve Corps is not limited in numbers, or *apportioned* among the different States, or Congressional Districts.
3. Last, but not least, that the suggestions offered by Major Ames when the Bill was being framed were not accepted in toto and incorporated in the Bill.

In order to make the matter perfectly clear, the *real intent and purpose* of the proposed legislation to establish a Reserve Corps, must be understood.

The Bill will, if it becomes a law, accomplish the following purposes: First; it will make what is now known as the "Contract Surgeon," a commissioned officer, with the rank of first Lieutenant. Medical Reserve Corps U.S. Army, and *will* give him while on duty in the service of the United States, the authority, rights and privileges of a commissioned officer. Second; It will allow the Surgeon General to select these officers by careful

examination before their services are actually required. Third: It provides a way by which Medical Reserve Officers who desire to enter the permanent establishment may be educated and promoted.

*In fact the MEDICAL RESERVE OFFICER, if the bill becomes law, will be AN ADDITIONAL FIRST LIEUTENANT in the regular establishment for service only when needed, carefully selected by examination as the permanent officers are now selected, simply this, nothing MORE and nothing LESS.*

The great complaint made by the Contract Surgeons themselves and by the Medical Department, has been that a civilian employee without rank cannot adequately do the duties required of a commissioned officer. *The Contract Surgeons have never claimed, nor has the Medical Department ever asserted that all of these temporary members of the regular Medical Department should be trained in the technical duties of medical officers.*

The Bill, as written, gives the "Contract Surgeons" the commission which they have rightly desired, and not only gives it to them while they are in active service, but actually continues it when they return to their homes, so that they are still connected with the Medical Department, form an eligible reserve list, and carry with them to their homes their commissions as evidence that they held an honorable position while they were in the service. The Bill *gives MORE* than the Contract Surgeons themselves have ever asked. Where then, the "broken faith," which Major Ames alleges, and with whom?

But Major Ames thinks that the Bill should have contained a proviso for the education of the Reserve Corps Medical Officers in the duties of the medical officer, either by correspondence or other method, and *erroneously* states "the Bill in question contains no provision for *any* instruction for the proposed corps."

Whether or not *all* (all is emphasized for the reason that the Bill provides for the education of some, Major Ames to the contrary, notwithstanding) the Reserve Medical Officers should be educated in the duties of medical officers, and whether or not a practicable scheme of education for them could be devised, a



scheme which would meet both their approval and that of Congress, is a question plainly open to debate:

Major Ames claims that the Medical Department has receded from its former position that medical officers should be educated in administrative duties. He quotes from a paper read by the writer at Boston, in 1903, in which the education of the officers of the *Medical Department and the National Guard at the Army Medical School* was urged.

*This Major Ames then opposed*, but has since become law. The writer did not urge the education of *all* National Guard Officers, much less that of all officers of the Reserve Corps, which corps was then not even dreamed of.

While admitting that if all Medical Reserve Officers could be educated in the technical duties of medical officers this condition would be ideal, practically, the problem of education of these officers presents certain difficulties which are plainly evident and group themselves as follows:

1. The education must be: (a) compulsory, or (b) voluntary.
2. The question of expense must be considered.
3. The necessity for such technical knowledge must be shown.

If the education is to be compulsory, then the spending of time in study, and the passing of certain examinations upon the special subjects pertaining to administrative work must be required of each Medical Reserve Officer, whether or not the officer ever goes on active service.

Personally, I believe, and I think my belief is shared by others, that it would be almost, if not entirely, impossible, to obtain a sufficient number of Reserve Officers if this technical education and examination were compulsory.

The Medical Reserve Officer is for temporary service and few professional men would care to spend the time required for study of the technical duties required of a medical officer unless they intended to enter the permanent establishment or were sure of long continued service. The case is entirely different with the permanent regular officer and the officer of the Militia, both of whom have incentive for such study through necessity for its practical application.

On the other hand, if the education was voluntary; and only such Medical Reserve Officers were educated as expressed desire so to be, the matter of education would depend entirely upon the caprice of the individual. Many would be uneducated, and with many chances that the particular officers educated would never be called into service.

As a matter of fact, it must be remembered that Officers of the Medical Reserve Corps replace the "Contract Surgeons," and are simply adjuncts to the regular Medical Corps. They have the rank of 1st Lieutenant and will do the work of 1st Lieutenants, the same work which is done by 1st Lieutenants, of the Regular Medical Department. This work is almost, if not entirely, concerned with the care of the sick and wounded, and the preservation of the health of the Army,—the work for which the Medical Department of the Army has been created.

*It has been reserved for Major Ames to be the first to say that, however assigned, the care of the sick and wounded "would degrade and humiliate," and that the doing only of professional work, 'practically would be servitude.'"*

The first Lieutenants of the Medical Department do this work; Why then should not the First Lieutenants of the Reserve Corps?

Is it true, as Major Ames states, that the care of the sick and wounded would degrade and humiliate the Medical Reserve Officer, and if so, would his degradation and humiliation be any greater than that of the First Lieutenant of the Medical Corps?

But Major Ames makes the astounding statement; "It is proposed to *keep him ignorant* of what it is conceded he ought to know, and *because he is so*, to deprive him of the "authority, rights, and privileges" of a medical officer of his rank.

It has not been the experience of the writer that men can be kept ignorant unless they desire to remain so. Also, if any member of the Reserve Corps desires to enter the Regular service and so rise to administrative grades, the law provides definitely a way by which he can so do.

Further, *the Bill actually provides for the education of the Reserve Officers*—a, practical; b, at the Army Medical School.

If the Medical Reserve Officer is, by operation of the law, called to active duty he will receive *practical* education in the duties required of him, and the lines of promotion, by passing the examination for, entrance to the regular corps will be open to him.

Also, the law itself specifically provides "that Officers of the Medical Reserve Corps who apply for appointment to the Medical Corps of the Army may, upon the recommendation of the Surgeon General, may be placed on active duty by the Secretary of War and ordered to the Army Medical School for instruction and further examination to determine their fitness for commission in the Medical Corps." Thus *there is provision in the Bill for instruction of such Reserve Officers as desire to permanently remain in the service*, a fact which *Major Ames has not mentioned*.

But Major Ames states: "We are informed too, that the Army Medical School, though created by the People, paid for by the People, and designed for the instruction of the Medical Officers of the Army of the People, will *not* be utilized for the education and benefit of any save a few chosen servants of the People who hereby assume to say what their masters, the People, shall do with their own."

A more astonishing statement could not be made, nor one which could show more absolutely the ignorance of Major Ames in regard to the matter which he discusses. The *law* now in existence allows the Army Medical School to be used only for the education of Officers of the Regular Medical Department and Officers of the Organized Militia of the various States. Both Officers of the Regular Medical Department and Officers of the Organized Militia of different States are *now* being educated in the Army Medical School.

Does Major Ames suppose that the School can be used for other purposes than those authorized by law? Does he suppose that the Surgeon General of the Army or the Secretary of War would countenance such use? Or is he carried away by the exuberance of his style and his desire to paraphrase in sounding periods the familiar utterance of a great statesman?

But while the Bill provides for educating certain of the Reserve Officers, there are difficulties, both practical and financial,

in the way of the general education of the Medical Reserve Corps. The Regular Medical Department, even after the increase as proposed in the Bill under consideration, will not be sufficiently large to do all the duties required of it. If the entire Medical Reserve Corps is to be educated—even by the correspondence system, additional work will be required of the Medical Corps, which would necessitate a still further increase in its numbers, while the work of education itself would necessitate an increase in appropriations. If now, the Medical Department is "self-seeking," as Major Ames asserts, it might well have urged the general education of the Reserve Corps, and have recommended a still higher increase in their own number, using the necessity for the detail of more Regular Medical Officers as instructors as a reason for the increase.

Individuals, even in Congress assembled, are rarely willing to pay out money except for good cause. Would the cost of the education of the entire Reserve Corps in administrative duties compensate for the possibly increased benefit to the service which certain of these officers would render when called into active duty? Personally, I believe that an affirmative answer cannot be given, and I am doubtful if Congress would look with favor upon such a sweeping educational scheme and its attending additional expense, when the benefits to be derived are so disproportionately small.

Effective education of medical men in the technical administrative duties of medical officers by the correspondence system is most doubtful.

A recent writer has said that while correspondence instruction is better than no instruction at all, this is probably the best that can be said of it. In addition, Major Ames says "Its (the Army Medical School's) curriculum would be a *limited*\* one \* \*."

A combination of correspondence system and limited curriculum would certainly be far from ideal.

Possibly a medical man instructed in the technical duties of a medical officer by the correspondence system would be better

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\*Itallies the writer.

than one entirely uninstructed, but it is doubtful if the little knowledge so gained would *materially* increase his efficiency.

As to a limited or unlimited Reserve Corps; Major Ames states: "A body of such alarming possibilities as to size, pervasiveness, opportunity and activity in the political or personal interests of its chief, or for those whom he might invoke its allegiance and labors \* \* \*."

"Such a power as that proposed, lodged in the hands of a Bureau Chief of the War Department, is greater than that vested in the President of the United States, and *might* be used with tremendous effect, for ends wholly foreign to its true purpose."

"\* \* \* the control of these unlimited opportunities by a single official without any legal check upon him \* \* is repugnant to safe and established policy."

Also, all these dangers are to arise from a body of men, whose individual members, according to Major Ames, are to be kept ignorant, deprived of the authority, rights and privileges which law says they shall have, degraded and humiliated, and limited to a service, which in the intent and manner of its assignment, would be grossly invidious, and practically would be servitude!

Really a most alarming array of possibilities *if true!*

Against all this Major Ames would array himself "while life and reason last!"

Major Ames sees a deep-laid scheme against the Medical Profession and the country. He sees an imaginary danger and fires his guns, charged not with the solid shot of argument but with the blank cartridges of personal, unsupported opinion, denunciation and borrowed oratorical phraseology at his personally created phantom and fantastic foe.

What are the real facts?

Up to the present time the medical profession as a whole has been practically the Medical Reserve Corps. From the general medical profession the Contract Surgeons are selected by the Surgeon General upon such examination as he may direct. The number of men from whom the Contract Surgeons are selected for active service is unlimited, and there has been no re-

striction as to the location, State, or district from which selections could be made. The Medical Reserve Officer when not on active duty is simply a civil practitioner with a commission, which is entirely inoperative and only shows that he is on the eligible list for selection for duty if his services are required and he is willing to give such service. *The Surgeon General and no other official, or combination of officials*, has any control over these men whatever. When they do come into active service they come only in such numbers as are actually required, and then not under the control of any single official but subject to the rules and regulations governing all commissioned officers of the Army.

Major Ames further contends that the Reserve Corps should be selected not after examination by the Surgeon General, but by the Surgeon General in conjunction with the several state military medical chiefs and Members of Congress. Why this should be so it is difficult to say. The Contract Surgeons and the Officers of the Medical Department are not now so selected. The Medical Reserve Officer replaces the Contract Surgeon and is an adjunct to the Regular Medical Department. It has never been contended that candidates for the Regular Medical Department should be examined and their qualifications passed upon by any other than a board appointed by the Surgeon General. The officers of the Medical Department work directly under the Surgeon General and it is only just and right that he should choose such men as by examination show that they are capable of performing the duties which may be required of them. If examined and passed upon by others, the Surgeon General cannot be held responsible for their efficiency. The same holds for the Medical Reserve Officer, who is, as before stated, an adjunct to the Regular Medical Department—an additional first lieutenant. If his examination and selection are controlled by others than the Surgeon General, the Surgeon General cannot properly be held responsible for his efficiency.

In regard to the question of limit for the Reserve Corps, there are reasons why the non-active Reserve Corps should not be limited. It is from the younger men on the non-active eligible

list that the active members must be selected. There must be enough men on the non-active list so that a sufficient number of men willing to do active duty can be obtained at a moment's notice when required. Also, new men must be constantly added to the reserve list so that as the older men form fixed ties enough young, unattached men will be available for service.

As to the distribution of these officers by State or district, and their appointment through Congressional or other recommendation, the permanent officers of the Medical Department have never been so selected, then why should the additional first lieutenants? Professional attainment, entirely independent of political or other influence, has been the sine qua non for appointment in the Medical Corps.

In fact, if as Major Ames recommends, the Reserve Officers were appointed by political or other influential assistance a body of officers so formed might be made a much more powerful political machine than officers selected for professional attainments only.

The Medical Reserve Officers being officers by right of professional attainment, could never be organized into a body which could be a menace. The very idea is absurd, and the more so, when coupled with Major Ames' assertion that the Corps would be a designedly created body of inferiors.

*Does Major Ames really think that such a body could be formed from the Medical Profession in the United States and then used as a tool?*

The last reason for Major Ames' remarkable statements now remains to be discussed; the fact that his suggestions were not taken and submitted to Congress in place of the Bill now before that body.

One cannot but believe that if Major Ames thinks that his opinions alone should be embodied in a Bill for the Reorganization of the Medical Department of the Army, he certainly shows a degree of "self-sufficiency," fully equal to that with which he has charged the Officers of the Medical Department. As a matter of fact Major Ames is only one of many whose opinions were received and discussed. The final outcome of the whole discussion

was the Bill now before Congress, a Bill which has received the unqualified support of the President of the American Medical Association, the Committee on Legislation of that Association; over 2,000 medical societies connected therewith, the support of the General Staff, the Chief of Staff of the Army, two Secretaries of War, and the Senate and President of the United States. It *remained* for *Major Ames* to find such alarming possibilities of danger to the country, such "self-seeking," "self-sufficiency," "autocracy," and such an "attempt to degrade and subordinate the members of the Medical Profession," as he claims to have found, and to bravely array himself against such high endorsement, single-handed flinging not argument but denunciation in ringing phrases, some of which have a most familiar sound.

But while challenging the Major's attitude and utterances, one can not but admire his valor in so arraying himself, and his extraordinary acumen as well.

The trained legal minds of Secretary Root and Secretary Taft failed to see the dangers to the country, the "self-seeking," "the subordination of high and broad ideas and great opportunities, to less worthy, narrow and personal consideration" concealed within the proposed bill. Perhaps their eyes were dazzled and their mental vision obscured by "the lights lent them by those interested;" so to Major Ames the credit must be ascribed of clearly discerning what these minds of known legal acumen failed to observe. Not only this, but he, and he alone, detected all those deep-laid plans to degrade a deluded medical profession, to elevate the Surgeon General with Czar-like sway above a legion of cowed, medical menials, ignorant and kept ignorant,—plans which had escaped the duller intellects of the President of the American Medical Association, its committee on legislation, the Senate, and the President of the United States! But Major Ames *saw*, saw as clearly as did the Baltic Squadron, the torpedo boats so skillfully hidden in the North Sea fishing fleet!

Major Ames further states that "*the*\* general outline for a Medical Reserve Corps of the Army, \* \* \* was submitted

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\*Italics the writer's.



by the writer in October last, to Major Borden of the Army, who greatly improved it by suggesting that members of such Corps be given ab initio the commission of assistant surgeon \* \* \* .” Major Ames also says his “original outline, which comprised \* \* \* a Medical Reserve Corps \* \* \* .” Thus Major Ames specifically or inferentially claims the authorship of this feature of the Bill.

Even in this, issue must be taken with Major Ames. The Major did NOT originate the Medical Reserve Corps feature of the Bill, nor did he give any expression of having such original idea until *after* he had received one of the first rough copies of the Bill, which copy contained the Medical Reserve Corps feature and title. The term “Medical Reserve Corps” or proposition for such corps was not submitted by Major Ames, either verbally or in writing, until after he had received the Bill for the Reorganization of the Medical Department of the Army, above referred to. In fact, the only idea presented by Major Ames previous to his receipt of this original draft was that some legislation should be enacted which would give the rank of “Medical Cadet” to the “Contract Surgeon.”

We are sorry to have to take direct issue with Major Ames in this matter, but *he is certainly mistaken, and cannot be credited with originating or suggesting the Medical Reserve Corps* feature of the Bill.

Finally, the honor of having originated the Medical Reserve Corps idea being denied Major Ames, there remains for him only the distinction of having called in question, in no uncertain terms, the motives and actions of the Surgeon General and the Medical Department of the Army, and of having arrayed himself against an honest attempt to make the “Contract Surgeon” a commissioned officer, and, more than this, an actual member of the Regular Medical Department of the Army of the United States, with all the rights and privileges which the permanent officer has, including opportunity for education and promotion.

In providing for the accomplishment of this purpose all the pros and cons relative to a Medical Reserve Corps limited only

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\*Italic the writer.

by the professional attainments of its members rather than limited and distributed by Congressional Districts, and the arguments for and against provision for educating the entire Corps were fully discussed. The arguments, criticisms and opinions not only of members of the Medical Department, of the General Staff, but of many members of the medical profession in civil life were welcomed and heard. The preponderance of opinion was in favor of a reserve corps, constituted as in the Bill finally submitted. The Bill is not, therefore, an expression of self-seeking and self-assertion on the part of the Surgeon General, the Medical Department, or the War Office.

The Medical Department of the Army is composed of members of the Medical Profession. That Major Ames in presenting his views should have arraigned the motives and actions of these members of a profession, to which he has the honor to belong, is it is thought, regrettable rather than warranted or convincing.

#### MARCH-SWELLING AND FRACTURE OF BONES OF THE FEET.

**A** POSITION contrary to the opinion current latterly that fracture of the bones of the feet is the most frequent cause of march-swelling and "footoedema" is taken by Dr. Fr. Klefberg in a recent number of the *Tidskrift i Militar Halsöfver*. While admitting that such fractures are relatively frequent among soldiers and that they may produce a swelling of the foot, he insists that they are due, as a rule, to trauma; whereas, march-swelling, as the name implies, only occurs as a result of a severe march without trauma. The shuttle-like thickenings of the bones of the feet in march-swelling, as seen by X-Rays, which have been taken to be callus formations after fracture, the author thinks to be due rather to ossification supervening upon periostitis, and finally he objects to the confusion of "footoedema" and "march-swelling" which he believes to have quite different significations.—HANS DAAE.

## IS THE COMMON HOUSE FLY A FACTOR IN THE SPREAD OF TUBERCULOSIS.

By J. O. COBB, M.D.

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SURGEON IN THE UNITED STATES PUBLIC HEALTH  
AND MARINE HOSPITAL SERVICE.

THE most fascinating study before the medical profession today is the method and manner by which the infectious and contagious diseases are carried from one person to another. Especially interesting is the study of the many, (seemingly) possible methods by which tuberculosis may spread. To reach back into the past only a few years, certainly in the memory of most of us here, is to recall the various phases through which our minds have passed in this short time. Most of the ideas concerning tuberculosis twenty years ago were crude and ill-grounded. We were ready to believe anything from anybody whether it bore the stamp of reason or absurdity. We clung to hereditary transmission—haven't let go yet for that matter—until the subject grew wearisome. Then it was that bad air was said to be all about us wafting the deadly bacillus to all alike, the rich, the poor. But that did not answer satisfactorily to those who thought, for they pointed the ever accusing finger to the homes of the poor, to the environment of squalor, and said, "There is where most of your cases are." A generally infected atmosphere was untenable, but the lowered vitality man came forward to claim that it was poor food, poor housing, and such things that so lowered the standard of resistance in the poor that the infection being in the air generally, here, there, everywhere, that they were the ones therefore to succumb and contract the disease. Back there somewhere, somebody suggested that the disease was transferred from the cow to man by means of infected milk and every one of us to a man believed it without question

and many still believe it. There were other theories brought forward from time to time—all to be held to firmly until the next came to view.

While we laugh at some of these notions, nevertheless the subtlety with which tuberculosis creeps upon its victims makes the average physician over anxious to know how to combat it and too eager to accept mere conjectures and immature theories. And yet we must advance, certainly when the old is found to be wrong, in part, or in whole.

The old ideas respecting the methods of spread of tuberculosis were partly wrong, if not wholly so. Many of our present day theories are vitally wrong. For that reason I have turned about from time to time, first to one side, then to another, forwards and backwards, seeking to come face to face with some fact that would help me work out by pure reasoning from the intangible surrounding us, how the insidious tubercle bacillus changes its habitat from one man's lungs to another man's lungs. One theory after another has been gone over and discarded as unworthy of belief or of minor or remote importance.

Today most of the great investigators feel, without being able to prove it, that the infection gains the circulation from some portion of the alimentary tract, the bacillus being screened out in the lungs. Many of these men believe that the chief portal of entry is through the tonsil; but whether through the tonsil or intestinal tract, nearly all of them hold that the bacillus is brought to the gateways of our circulation by means of infected food.

In one respect all medical men agree and that is that tuberculosis is a filth disease, most commonly found in filthy homes. Because of this fact many of us have been misled into attributing the cause of tuberculosis, or to put it in the language of today, the predisposition to tuberculosis, to bad air and all the bads that go with squalor and filth. Poverty and bad air are only incidents in the course of the disease and have nothing whatsoever to do with its transmission. In like manner bad air and miasms have no importance from the standpoint of the transmission of typhoid fever, malaria or cholera. And yet not one of you lays

the importance of bad air to typhoid fever that you did twenty years ago. As for malaria one can live indefinitely in good health in so called miasmatic swamps if free from the mosquito. In fact you pay little attention to bad air now except in a general sanitary way. Why? Simply because you have learned that, in typhoid fever if you keep the water supply sterile and keep the flies away from the dejecta the disease will not spread. It's a plain, simple laboratory example of keeping the contagion away from the medium. Bad air has nothing to do with causing the disease whatsoever, only having remote bearing on its outcome when once it has gained a foothold.

Now do you believe that bad air, and poor homes and worse food have anything whatsoever to do with causing tuberculosis? Yes, probably everyone of you, without exception, hold it to be the chiefest cause. You will hold on to this foible just as we used to hold to that nonsense about sewer gas causing typhoid fever. Do you remember what a craze there was about sewer gas and how the faulty plumbing was being torn out to prevent the spread of the disease? Now I believe that this idea about bad air and tuberculosis is just as groundless of reason as that. It seems plain that the matter of dosage and the person being in the constant presence of the contagion are the essential questions for us to look to and work out.

Assuming the postulates that inhalation plays an unimportant role; that infected food is the prime medium; disregarding infected milk as a factor as I feel that we are justified in doing, causes the natural inquiry, what then is the medium of infection to man? And if it is infected food what is the process of infection and how does the infection reach the vital portions of our bodies?

The mental steps in reasoning out the method of spread of tuberculosis is ever like the tides. By this method of investigation we have gained on the foe under conditions where pure experimental investigations have failed. It is only by a trying out process that we can run down this disease and I would revive a discarded theory by a backward swing of the pendulum.

Is then the common house fly a factor in the spread of tuberculosis?

If the disease does gain entrance to our circulation through the intestinal tract then the fly is an important factor because this insect undoubtedly plants millions of bacteria and tubercle bacilli upon exposed food in the filthy portions of cities. I have demonstrated that the fly conveys the bacillus and Spillman and Haushalter called attention to this possibility several years ago. Hoffman fed flies with sputum and recovered the tubercle bacillus from their fecal matter. More recently Hayward of Detroit, has reported a number of experiments which have covered more closely all that has previously been reported by Hoffman.

It is proved that the fly can convey tubercle bacilli on its feet and wings and that it feasts upon tuberculous sputum with the greatest avidity strangely enough to be followed by diarrhoea, as Hayward has observed. This investigator has also showed that smears from the stomachs of flies that have fed upon tuberculous sputum contain virulent bacilli. Both he and Hoffman have proved that the virulency of the bacillus is unaltered by passage through the intestinal tract of the fly. That a fly can carry large quantities of sputum to considerable distances upon its feet, wings and body all of us know to be possible and I know to be true. We are positive that the fly does carry sputum on its feet and wings and in its stomach to food; there to be deposited by actual contact or by dejecta. Granting this as I believe all of you must brings us squarely to the question at issue.

Here again you will ask me to explain how the bacillus reaches the lungs if taken in by the way of the intestinal tract. And still again you will ask me, why is it that bacilli will pass the mucous membrane of the alimentary tract without lesion and apparently without detention.

Both these questions can be answered simply and convincingly if you can rely upon an experiment said to have been made by Nicolas and Descas. These experimenters working in conjunction fed to fasting dogs, bouillon containing vast quantities of tubercle bacilli. In a very short time they found that smears from the thoracic duct showed tubercle bacilli.

If this experiment is free from error, and so far as I know, no one has disputed it, then it indicates how easily bacteria can

and do enter our circulation. If a foreign body or a bacillus should gain the thoracic duct it would be poured into the great veins; then into the right side of the heart, thence to the pulmonary circulation to be screened out and cared for in nature's way. If the conditions are unfavorable the bacillus will succumb to the onslaught of phagocytes. If the conditions be favorable then the bacillus gains a foothold and we have the formation of the classic tubercle. I do not doubt in the slightest that bacilli and foreign bodies can be and are inhaled deep into the lungs. Neither do I doubt or question the possibility and the probability of infection in tuberculosis by this anatomical route. For me it has been one of the hardest things to give up the inhalation method as the most prominent route of infection, but slowly, reluctantly, I have come to believe strongly, that infection through the bronchi is of far less frequency than through the intestinal tract. If then this is so and our picture is true one must not lose sight of the fact that the bacillus has reached its lodgement in the lungs via the circulation and not by the way of the bronchi. It cuts out of consideration nearly entirely direct pulmonary infection by inhalation, except in so much as infected dust may be breathed into the nose and pharynx and its contagion deposited upon the moistened pharyngeal walls, to be swallowed later. And all this looks reasonable and possible. It has the stamp of probability. To me it seems to be true.

Turning sharply away from the speculative I would invite your attention to the tangible, to something within our grasp, a thing which we can try out and run down. I am sure you are not blind to your environment, even in Los Angeles, in Southern California. Each of you try and go out with me in his imagination to the streets and alleys and filth holes in this dirty but beautiful city. Turn about you, anywhere, everywhere and it is flies in swarms upon decaying vegetable matter and the sputum and spittle of your streets. As you walk along your streets, say Second and Spring, look carefully (in fly season), and see the great number of flies actually contending over spit. And there certainly seems to be enough for them without fighting for it. If you will follow that gourmand of a fly

farther, watch your fruit stands and see the grapes, the dates, and all fruits covered with flies. At one of the very finest fruit stores in the city I have repeatedly seen the box of dates which had been broken open, swarming with flies, while within one hundred feet, there were upon one occasion as many as five cadaverous consumptives, one of whom I positively know spat upon the street and I watched the flies rush for this sputum like gulls after food thrown into the sea. Go on farther and look into your stores which sell bread and pastry. Flies there too, and on the bread you eat. The meat market must not be overlooked. Have any of you noticed how the meat of this city is handled? But it is cooked before using you will say. Granted, but still do not fail to look your butcher shop over well and don't forget the sausages, and such other things, some of which are not cooked before eating. It is good for the appetite that you note such things. Of course I have not ventured to suggest that you go into the cheap restaurant kitchens as I have no desire to disgust you utterly. Let's pass the restaurants by and go on down to the small shops and homes in the poor sections of your city. Flies everywhere! In the children's mouths and noses; in the house, out of the house; on the food left there upon the table which is never cleared; on the food left over and which the children eat at all times between meals—in the milk pitcher, in the soup, in the molasses, in and upon every conceivable thing. If this picture is not bad enough for your notice watch the candy exposed for sale to your children by the street vendor. Just take a good look at him when fly time comes again.

And this is the exact, the literal truth of Los Angeles. It seems bad enough, certainly, but you of other cities, St. Louis, New York, New Orleans, are even greater in your filth and thereby you have the fly in greater numbers. What is true of one city is practically true of all others.

Bent upon seeing the fly in the environment of its greatest prosperity, where it has plenty to eat and drink, in common with man, I have peeped into the shops and homes of the poor in several large cities. In two things the poor, nearly universally, have a common habit, viz., leaving the table set, with cold foods



left over from the meals upon which the flies in summer congregate in enormous numbers and from which, the children, from time to time, run in and help themselves. Now then if there be a consumptive in that house or nearby who is careless with his sputum, is it unreasonable to believe that flies feeding upon this sputum may not in the course of the day deposit bacilli upon this food, so exposed? Not all bacilli gain a foothold though taken into our bodies in enormous quantities. We cannot escape the fact that the majority of cases of tuberculosis can be traced to a previous close contact with someone suffering with the disease. If Pottenger and others are right either wholly so or in part that the disease is contracted in childhood, then we can understand how these children got their infections. Delayed manifestations of the disease can be explained by different causes, certainly to the natural immunity that certain ages have to certain diseases.

In the Philippines the army medical officers found that cholera was continually spread by street vendors and small shop keepers whose articles of food for sale were constantly exposed to contamination by flies. You medical officers of the army know how hard it is to guard against typhoid fever in a permanent camp simply because of this same pestiferous fly infecting the food from fecal matter. These are demonstrable facts, undisputable. Is the theory of the fly transmission in tuberculosis less reasonable?

Tuberculosis is conveyed from one person to another person by means of infected sputum and there is no intermediate host in whose body the bacillus multiplies. The bacillus that gains a lodgement in one man's lungs is the same bacillus that was given off from another man's lungs without any change whatsoever. By means of the fly this bacillus may reach the intestinal tract of some person in a very short time after it has been expectorated from another person's lungs; or it may be deposited upon the food which is not immediately eaten and which may be sent out to localities far removed from close proximity of a consumptive.

Wherever the fly is there you will find consumptives. I have collected reliable data from all over the world on this point

and to put it another way, there is absolutely no question that where there is consumption, there is the fly also. On the north-west coast there are few flies and in certain portions of Scotland the same is true. But flies do appear in these sections for a short time in the summer.

If the claims that have been made be true, it does not alter the practical question at all. The same grand fight for better housing of the poor must be kept up by such men as Otis, Bowditch, Knopf, Flick and others too numerous to mention. The fight belongs essentially to the sanitarian. The old struggle is the right one. Every particle of sputum should be destroyed whether or not we believe in the fly theory or inhalation method; failing that, as of course we shall to a greater or lesser extent, than continue the fight for clean houses and clean backyards and clean food without contamination by flies or by infected dust.

#### FIRST AID DOGS.

**A**MID the gorse near the windmill on Wimbledon Common an interesting exposition of the work of ambulance dogs in war was recently given by Major Richardson, assisted by members of the Hautdeville Royal Army Medical Corps (Volunteers). Two dogs were equipped with canvas jackets fitted with first aid appliances and little casks containing brandy and water. Both were smaller than collies, though containing a good deal of the collie, with a dash of the retriever in one case, and of the Eskimo in the other, and their work was to discover "wounded soldiers" for the ambulance party in attendance. It was impossible for the dogs to work by scent on the present occasion owing to the number of persons crossing the common, while the absence of blood was another drawback to a complete illustration of their usefulness. But they worked by sight and sound excellently, quickly discovering men, and docilely lying down by the "wounded" men so that the latter might help themselves to stimulants and bandages. Major Richardson stated that he has sent several of his trained ambulance dogs to the Russian army in Manchuria, and that the German War Office have also given him an order.—*United Service Gazette*.

## PRACTICAL HEARING TESTS.

By MAJOR WILLIAM SOHIER BRYANT.  
OF NEW YORK.

LATE BRIGADE SURGEON OF UNITED STATES VOLUNTEERS.

**W**HAT sound is it necessary the recruit should be able to hear? Surely not the tick of a watch,\* not the click of an acoumeter, or the tone of a tuning fork; but the sound of the human voice.

The unreliability of hearing tests in common use is due to many causes. Most important of these is the difficulty in closing the other ear, while testing the one. This must be done, because, unless an ear, is hermetically sealed, some sound will enter. When the hearing of one ear is normal or abnormally acute, carelessness easily allows sufficient sound to enter the one ear to vitiate the tests of the other. Besides, the distinctness of articulation is very subject to change, and makes a considerable difference in the carrying power of the voice. The faculty some people have of reading the lips is another possible source of error which it is hard to eliminate entirely, without the greatest care (mirrors, etc.).

The fact that in quantitative hearing tests mechanical devices are usually used, shows that the ordinary voice test is not wholly satisfactory, and is considered inadequate. This inadequacy is due to the inexactness and unreliability of the results. But the hearing capacity for mechanical sounds is not an equivalent of the hearing capacity for the voice, because in a considerable number of cases the hearing for mechanical noises bears no relation to the hearing capacity for the human voice. This irregularity is usually caused by various tension anomalies of the sound conducting apparatus of the middle ear, which affect the acoustic balance differently, impeding the passage of certain groups of tones more than certain others. It is also caused by

similar disturbances of the sound perceiving mechanism. An illustration : A man forty-three years old—

Watch O. S.  $\frac{5}{80}$  O. D.  $\frac{60}{80}$

Voice O. S.  $\frac{36}{40}$  O. D.  $\frac{40}{40}$

Voice tests alone are unsatisfactory because of the considerable space required to make a test for loud or even ordinary speech, and also on account of the variability in intensity, pitch and clearness of articulation in the voice of the examiner. For these reasons the mechanical tests are usually added. Why else use the mechanical tests as a control for the voice tests? The tests by the mechanical means are also subject to considerable variation, unless applied by a trained examiner. The tuning fork must be held at a constant distance, and the interference of the prongs must be kept in mind. In using the watch or acoumeter, a considerable difference in the results is noted, caused by the angle at which they are held with reference to the axis of the auditory meatus; also in the way they are held. For instance, a watch held in the hollow of the hand with the broad surface towards the ear is heard much further than if the watch is suspended with its narrow side towards the ear. The variation in the intensity, pitch and clearness of articulation of the voice seriously affects the exactness of the results, and the practical impossibility of two examiners giving exactly the same voice test interferes with the comparison of their different observations.

Injustice is done, first : to both parties, by the rejection of a capable recruit ; and second: to the government when a recruit is accepted with hearing sufficiently impaired to interfere with his performance of duty, or when the defect may later be used as the basis for a pension claim. Under the first group comes the man who cannot hear mechanical sounds but who has a very good ear in other respects, as shown by voice tests. I have at present under treatment a civil service applicant, aged 25, who failed of appointment because the tick of a watch was not sufficiently well heard in one ear, but no defect of voice hearing was noticed. Under the second group comes the man who can hear the mechanical sounds well, and has a bad ear and poor voice perception, or the man who through error or carelessness of the ex-

aminer or his own clever deception gives a good hearing test, thus allowing the enlistment of a man whose hearing is below par. This class of cases is especially important in a country like ours, where the recruit may later claim a pension for loss of the hearing which he did not possess at the time of his enlistment. During my service as aurist to the 7th Army Corps I noted a number of instances where recruits had been accepted in this way, as was shown by the chronic defects in their ears, which from their nature must have existed long before the time of enlistment. The truth of this was confirmed by the honest ones who readily admitted that their hearing was defective before enlistment.

The phonographic acoumeter invented by me, alone gives an absolute and unvarying test of the hearing for the human voice, the lack of which has long been a stumbling block in the path of the otologist. This acoumeter overcomes all difficulties, for it can be manufactured in large numbers with perfect accuracy, and the pitch and intensity of its mechanical human voice does not vary. Nor can the sound enter the wrong ear. The voice produced by the machine has a constant intensity and pitch, the intensity of the sound conveyed to the recruit being under accurate control of the operator, who can modulate it from the loudness of the voice when a speaking-tube is used, down to nothing. In this way the machine allows the operator to determine accurately the limit at which the recruit is able to hear sufficiently distinctly to repeat the words spoken by the machine. Distance is no longer needed for the voice tests.

This acoumeter provides a sure method of detecting feigned deafness, which is a very important matter in European armies. If the feigned deafness is anything short of absolute the recruit will easily be led into a trap, for it is impossible for him to give answers consistent with the varying positions of the graduating valve combined with changes in the malingerer's valve. When the malingerer feigns deafness in only one ear, the malingerer's valve, turning the sound on and off from the ears, rapidly alternating or simultaneously, distracts the recruit, and prevents replies consistent with any considerable degree of real deafness.

The tests obtained by the use of this acoumeter can be readily compared, in the same way that an ophthalmologist com-

pare his visual tests, with the assurance that the tests in every case are practically accurate.

#### CONSTRUCTION.

An Edison standard phonograph\*, *A*, fitted with a rubber

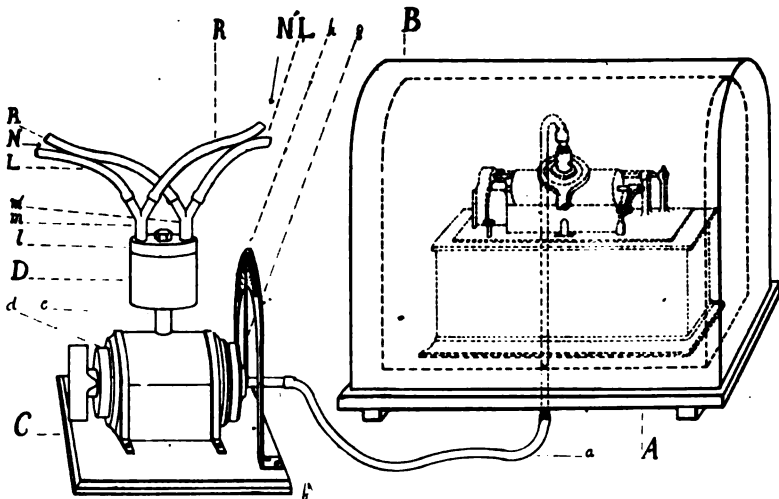


Fig. 1.

tube, *a*, is placed in a sound-proof box, *B*, made of sheet lead. The tube, *a*, leads the sound out through the box wall. A brass graduating valve, *C*, is attached to the distal end of the rubber tube, *a*. This valve serves to regulate the volume of sound conveyed to the ears of the patient.

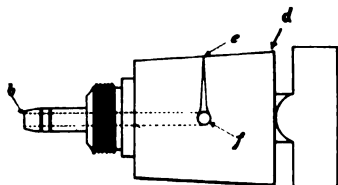


Fig. 2.

The graduating valve has a central disc, *b*, and a side outlet, *c*. The plug, *d*, of the valve, *C*, (See Fig. 2) has a groove, *e*, on its surface leading from the side of the plug-outlet hole, *f*. The groove, *e*, is

made like the section of a bent cone with its base at the hole, *f*, and its axis extending for 90° over the surface of the plug, *d*. Fig. 3 shows the plug, *d*, in section through the tapering cone, *e*, and the outlet, *f*. The tapering cone, *e*, serves

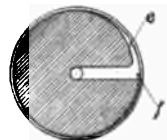


Fig. 3.

\*National Phonograph Co., Orange N. J., U.S.A., makers.

to gradually close the passage for the sound through the graduating value, *C*. This valve (*C*, Fig. 1), is fitted with an indicator needle, *g*, and dial, *h*. The needle is attached to the rotating plug, *d*. The dial is an arc of  $100^{\circ}$ . The reading on the dial indicated by the needle gives the proportionate amount of sound reaching the patient's ear,  $0^{\circ}$  when all the sound reaches the patient, and  $100^{\circ}$  when no sound goes to the patient. After leaving the graduating valve the sound is conveyed to a three-way brass valve called the malingerer's valve (Fig. 1, *D*), shown in Fig. 4, which has one inlet, *c*, and two outlets,

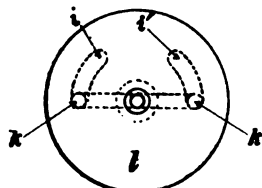


Fig. 4.

cut in *L* and *R* such a way that rotation of the disc will open or close the outlets, *i* and *i'*, alternately or simultaneously.

The outlets, *i* and *i'*, correspond to the passages, *k* and *k'* in the disc, *l*, which are fitted with Y-tubes, *m* and *m'*, a rubber tube; goes to the limb intended for the patient's right ear, and the other way to the limb for the right ear of the operator.

The two arms of the Y-tube, *m*, are each fitted with one of the tubes of a stethoscope in patient's right ear, tube in a similar of the stethoscope of the operator.

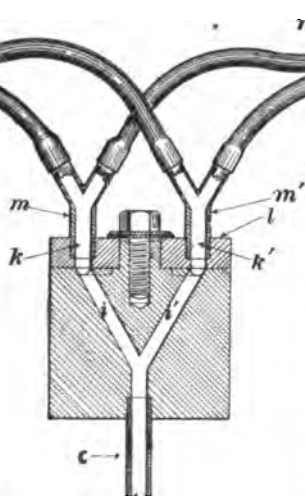


Fig. 5.

The other Y-tube, *m'*, is rigged in the same way for the left ears. The tubes for the patient are *n*, and the tubes for the operator are *n'*, both rights and lefts, *R* and *L*. Fig. 5, shows the disc, *l*, of the malingerer's valve, *C*. *k* and *k'* are the passages through the disc, *l*, which corresponds with the elongated openings of the forks of the inlet, *c*. The shape of *i* and *i'* allows the alternate opening and closing of the sound passages.

The cylinders used in the phonograph are made from permanent master records. They can be readily replaced when worn out. The records are made from carefully selected monosyllabic words in common use, with special reference to the logographic value of the consonants.

The operator is provided with a slip of paper on which the words of the records are printed to enable him to check the words as the recruit repeats them after the phonograph.

#### MODE OF OPERATION.

The recruit is instructed to repeat all he hears, and his ear tubes are adjusted in his ears, the examiner taking his own tubes. The indicator is placed at 100° on the dial, and the phonograph is started. The operator slowly moves the indicator until the recruit remarks that he hears but does not understand, or repeats the words incoherently. Then the examiner, still moving the indicator, checks the words which the recruit repeats correctly on the word list previously provided. When the recruit repeats at least seventy-five-per cent. of the words correctly, out of ten or fifteen words, the scale is read and the test is completed. The reading of the scale gives the acuteness of hearing possessed by the recruit. To get the absolute hearing, this number should be squared and multiplied by the per cent. of words accurately repeated. A quick way of writing it is in the form of a fraction, the numerator being the reading of the scale, and the denominator the per cent of words repeated. The ears are tested separately in the same way, by adjusting the three-way valve for the separate ears. Normal hearing for adults ranges between 70 and 80. Hyperacacusis ranges above 80.

In order to test unilateral malingering, the indicator is placed at a point at which the recruit hears readily by both ears together, and the operator quickly turning the malingerer's valve with his left hand, cuts off one or the other of the ears, but never both at once. At the same time he marks the words repeated correctly by the recruit, with + for right, and — for left and 0 for both, or some similar symbol. The result will show conclusively, first that the patient can hear, second, that hearing of the two ears bears a constant proportion each to the other. If the



recruit suspect some trick, the relative proportion will be irregular, for no recruit can be quick enough to detect accurately every change in direction of the sound. The hearing for the good ear alone must equal the hearing for both ears together, if the bad ear is deficient to any considerable degree.

The same procedure combined with changes in the graduating valve serves to detect bilateral feigned deafness.

#### SUMMARY.

The phonographic Acoumeter gives a satisfaction and accuracy not hitherto attained.

It furnishes a universal standard, whose records are always comparable.

It provides a sure method of detecting all forms of feigned deafness short of feigned total deafness.

#### DISCUSSION.

SURGEON CHARLES F. STOKES, U.S.N.,—I would like to say a word in connection with hearing tests as applied to the navy. I think it a matter of great importance to know the condition of the ear drums. Our men are frequently exposed to the effects of gun fire blasts causing rupture of the drums. For instance I had as my patient at Santiago, a lieutenant who, before the battle of Santiago had seen service on the *Oregon* on her trip around from the Pacific and as a result of the first bombardment he had both ear drums destroyed. He was sent on board the *Solace* during his convalescence and he eventually recovered the hearing in both ears. I think it is of great importance to know the condition of the drums of those entering the navy, as many with defective drums soon become disabled from gunfire.

THE PRESIDENT: I think one of the most desirable things in the world is a desirable test for hearing, and I have great hopes that this invention of Major Bryant's will prove all that is desired in that direction.

#### THE USE OF IODOFORM IN WOUNDS INFECTED WITH LARVA.

THREE cases of wounds infected with the larva of flies are reported by Dr. J. Legendre; they all contained masses of living diptera larvæ which were removed with forceps as far as possible. The smaller ones were left, and the wounds freely dusted with iodoform; all the remaining larvæ were killed within twenty-four hours, and the wound took on the aspect of an ordinary infected wound and healed rapidly.—S. M. DELOFFRE.

## RADIOGRAPHY IN ARMIES IN THE FIELD.

By DR. H. MARESCHAL.

PRINCIPAL PHYSICIAN OF THE FIRST CLASS IN THE FRENCH ARMY.

TRANSLATED BY LIEUTENANT C. J. BARTLETT.

MEDICAL DEPARTMENT, UNITED STATES ARMY.

EVERY one knows how desirable it is, and at the same time, difficult to supply the medical units at the front with a good x-ray machine. This latter must, in fact, answer to the following desiderata, which it has been impossible until now to realize: irrepachable function united to an extreme mobility. This last quality is almost as indispensable as the first, for from the point of view either of economy, or of the length of the columns, it seems sufficient to limit ourselves to one plant per Army Corps.

In France, during the Grand Maneuvers of the East, in September, 1904, Surgeon Major Jacob, Associate Professor at the School of application of military medicine of Val de Grace, experimented with a radiographic motor wagon, intended for armies in the field. This wagon, constructed by the firm of Gaiffe, of Paris, from the point of view of electrical apparatus, and by the firm of Panhard & Levassor, of Paris, from an automobile standpoint, comprises :—

1st. *A closed motor wagon*, the appearance of which recalls that of the French ambulance of 4 wheels. Its motor, of ten horse power, can give it a speed of 25 kilometers per hour. Its wheels are supplied with solid rubber tires.

2nd. An x-ray plant. This latter is none other than the new apparatus presented by Messrs. d'Arsonval and Gaiffe at the Academy of Sciences of Paris in 1904, and the detailed description of which is found in the Archives of Medical Electricity of 1904; its characteristics are that it works with neither an interrupter nor

a storage battery and that it is able to furnish a power (in a way) unlimited.

The rear of the wagon opens horizontally with two doors : the upper door can be maintained by means of an iron rod in such a way as to furnish a sort of roof ; to this door is attached long curtains of black cloth which reach to the ground and thus make a *dark room*.



**Radiographic Motor Wagon.**

When the wagon has arrived at its destination, its motor is utilized to work a dynamo placed under the seat ; this dynamo furnishes the alternating current necessary for operating the radiographic apparatus.

During the entire duration of the Grand Maneuvers, the radiographic wagon was subjected to very difficult tests. It travelled in the neighborhood of 2,800 kilometers, passing over all routes that in time of war would have been traversed by the wagons of the Medical Service. Each day, either along the roadside, or upon the arrival at the halting place at the end of the day's march, the wagon was immediately experimented with, for two or three hours, from a radiographic standpoint, and it was agreed that the workings of the apparatus had been constantly perfect.

There is then ground for hope that the happy innovation of Messrs. Gaiffe and d'Arsonval will soon form part of the authorized material of armies in the field, so much the more because, besides its medical uses, this device serves also for wireless telegraphy.

I add that it will not have to await the horrors of a war to render itself useful, and that, in a time which I think nearby, the Physicians in small towns will be enabled to telegraph the Prefect of their Department to place at once at their disposition means radiographic and radiotherapeutic which have been lacking until now to the sick and wounded who can not be transported and who are at a distance from the great centers.

TRANSLATOR'S NOTE.

The machine described seems one of merit and utility. Its usefulness would probably be restricted to the Base and Reserve Hospitals. The possession of such machines would ensure the presence of an x-ray apparatus in these more or less permanent hospitals in the rear of the fighting forces, where they would be of great value, and where, but for the mobility of the machine itself, they would be absent.

THE PROPHYLAXIS OF EPIDEMIC DISEASES IN THE  
RUSSIAN ARMY IN MANCHURIA.

THE Society of Physicians of Moscow have sent sanitary detachments into Manchuria for the special purpose of combatting epidemic diseases. They were recruited from the Bacteriological Institute of Moscow, where all the sera and vaccines discovered by modern science are prepared. All the members of the detachment were inoculated with anti-typhoid serum, and were furnished large quantities of anti-dysenteric serum and other therapeutic sera. Each sanitary detachment was composed of a central column (3 doctors, 2 students, 8 disinfectors), and three flying columns (1 doctor, 1 student, 4 disinfectors). They were furnished with steam, formaldehyde and other chemical disinfecting apparatus, instruments and equipment necessary for hygienic and bacteriological research, vaccines, prophylactic and therapeutic sera. The central column stops in cities, establishes laboratories, makes all the researches, and dictates measures to localize and check epidemics. The flying columns are sent out in other dangerous localities.—S. M. DELOFFRE.

# Enno Sander Prize Essay=1904.

## THE RELATION OF THE MEDICAL DEPARTMENT TO THE HEALTH OF ARMIES.

BY LIEUTENANT COLONEL WILLIAM HILL-CLIMO, M.D.  
LONDON, ENGLAND.

LATE HONORARY SURGEON TO THE VICEROY OF INDIA;  
ASSOCIATE MEMBER OF THE ASSOCIATION OF  
MILITARY SURGEONS OF THE  
UNITED STATES.

"He who has decided on war, or is convinced that his adversary has done so, must forthwith open hostilities, if it be to his advantage from a military point of view. No political doubt, no moral scruple must keep him from it." *The Military Lessons of the South African War*, by General von der Goltz in the November 1903 number of the *National Review*.

THE subject of this paper is singularly opportune, for the principle formulated in the above quotation has received the acceptance of all the great Continental powers, and it will have to be reckoned with in the future, but without this warning the history of modern wars shows that time is all important hence that army which is best prepared for war on the outbreak of hostilities, and which possesses the greatest mobility, is the most efficient. It is from this standpoint that I propose to discuss "The Relation of the Medical Department to the Health of Armies," and in the belief that hitherto the Medical Department in peace and in war has not been effectively employed, for, notwithstanding the progressive development of sanitary science, medical officers are not afforded much greater opportunity for putting it into practice than when sudden death was ascribed to the Visitation of God.

The bulk of this paper was finished before the outbreak of hostilities between Russia and Japan. The progress of this war gives substantial support to the views herein expressed.

Preparedness for war depends upon military efficiency which primarily depends upon the physical efficiency, in other words upon the health of the troops. The reference is to the soldier presumably healthy, who is at his duty, and who is living in barracks, and to the relation which the medical department bears to him; theoretically a certain responsibility rests with the department to keep the soldier in health, but it is a responsibility which by design has been divorced from power and which consequently cannot be enforced. Many causes have contributed to this result of which prejudice, apathy, and the conservative instincts of armies are important, but standing out as the *causa causans* is disbelief founded on ignorance not only on the part of the soldier, but of others in high places, of what sanitary science is capable of doing for the preservation of health, and for the prevention of epidemic diseases. In the light of recent discoveries it will be no longer possible to take shelter under Dr. Johnson's famous plea, "honest ignorance, my dear madam, honest ignorance."

This want of appreciation of medical science has restricted the work of the medical department in peace to attendance on the sick in hospital, and to the training of sick attendants and bearer companies. Thus "cramped, cabined and confined" the rôle of the medical department has been to advise only in sanitary affairs and from the nature of the case this advice has been of a desultory character being sometimes partial, or it is not timely, or it is attended with practical difficulties which have not been fully considered, for which the medical department is blamed, when the fault lies with the system under which it works. We live in an age of military reform; officers are advised to take the initiative, and to assume responsibility; and for this purpose decentralization and sub-division of work are suggested yet the medical department remains much the same as it always was, and it is not afforded the means of carrying out those beneficent measures, which sanitary science places at its disposal. The question is simple, it is whether the medical department is to remain advisory, or is to be given executive power; before this paper is finished it will be shown that conception and execution are inseparable.

It is for Governments to decide this question; towards this object it will be helpful to give a summary of the duties which the progress of modern warfare demands from the medical department, and which medical science gives it the power to execute, and to compare them with those actually performed at the present time. These duties are in peace (1) the selection of the recruit, and his health preparation for training, (2) the safeguarding of the health of the soldiers serving with the colors, (3) the treatment of the sick in hospital and during convalescence, (4) the prevention of epidemic diseases and (5) preparation for war. In war its duties are the care and treatment, including transport, of the sick and wounded, and the prevention of zymotic diseases notably of dysentery and enteric fever.

Nations which are compelled to adopt conscription because their frontiers are coterminous, and which at any time may become hostile, are not embarrassed with recruiting difficulties, for their supply of recruits, who are physically fit for immediate training, is ample, and their enlistment is automatic, but for nations, whose garrisons are spread over many continents, and whose system of recruitment is voluntary, the problem is a complicated one. The two great powers, which adopt it, are Great Britain, and the United States of America; they no longer count upon insular isolation, or upon supremacy on one continent as a complete protection, their interests are world wide, and the power to protect them must be commensurate. Steam and electricity have revolutionized the military positions of most countries, and have given to those, which are ready for war, a supreme advantage. Bearing these facts in mind it is the relation of the medical department to the health of armies which are recruited by voluntary enlistment; which will be chiefly considered, but the main principles, especially those relating to war, are applicable to all armies however raised and wherever serving.

The selection of the recruit is the first necessity in the organization of military forces.\* In so far as capacity for military service can be determined from the standards of height, weight, and chest measurement, and by freedom from organic diseases

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\*Military Hygiene. Munson.

this duty can be equally well performed by a civil practitioner as by a medical officer of the regular army, but there is something more required, for the examining medical officer must be able to say that the recruit is fit to begin training, or, if not, what health preparation he should undergo, and he must be able to forecast the probable effect which military service will have on his future efficiency. Theoretical and general medical knowledge is not sufficient, it needs experience which can only be gained by a close association with the soldier in his work, and by being in constant touch with military affairs.

Voluntary service armies in war are largely supplemented by a auxiliary forces, militia, yeomanry and volunteers; in composite armies so raised, often hurriedly, the medical examination of recruits, etc., is not satisfactory for the reason just given, besides medical officers of the auxiliary forces through local circumstances are more susceptible to social and official pressure. In war the dearth of men is so great that the regulations are set aside, and sometimes political exigency is satisfied with a paper army that is to say men are enlisted, and shown on the strength, who would never be selected, by experienced medical officers of the regular army, as fit for field service, and who by no possibility can reach the fighting line. Recent wars have shown that such laxity jeopardizes the success of military operations, fills the hospitals with sick, and paralyzes the work of the medical service for which the medical department is afterward blamed. In the performance of this duty the medical service must be granted greater independence and freedom of action.

The safeguarding the health of the soldiers serving with the colors rests with the officer commanding the troops which is in accordance with regulation and with custom; the correctness of this principle cannot be disputed for it is essential for success in war, it is the way it works out in practice which is so objectionable because from the General Officer Commanding-in-Chief this duty runs down the whole gamut of command to officers commanding regiments and corps units the medical department being only called upon for an opinion as may be considered necessary. This system is doomed to failure because of the limited action



which is allowed to the medical service, because the executive is entrusted to unskilled hands, and because the responsibility is frittered away in so many different agencies. Were army affairs managed as a commercial undertaking and run on business lines the General officer, as Managing Director, would ask himself this question: How can the health of the army be best safeguarded with the least danger to military efficiency, and for this purpose what is the best agency?

As it is universally acknowledged that for the successful prosecution of enterprises of war, the authority of the officer commanding the troops in all matters relating to his command must be supreme there has been considerable difference of opinion as to what Agency and in what manner this duty should be performed. Recently two schemes have been placed prominently before the British public, which may be said to have originated in the lamentable loss of life from preventable diseases, which took place in the South African War. One of which, voiced by Dr. Leigh Canney, is based upon the "responsibility of all non-medical officers for the executive sanitary work of camps and units," and "for the incidence of enteric, dysentery and cholera in their units" the medical department supplying sanitary officers "in one of two capacities (a) advisory at the request of the officers of this camp or unit and (b) critical and peremptory for purposes of inquiry after every outbreak of these diseases."\* The other has been from time to time suggested in military and other magazines, and has recently found strong support in the "Report of the Commission on the Nature, Pathology, Causation and Prevention of Dysentery and its relationship to Enteric Fever" of which the War in South Africa was the occasion. It is that the Medical department should supply executive sanitary officers by dividing the department into two branches (a) the medical branch and (b) the health branch.†

The relation of the medical department to the health of armies will be determined by the adoption of one or other of these

\*"The Abolition of Typhoid (Enteric Fever) Dysentery and Cholera in Armies" by Leigh Canney, M.D. (London) in the October 1908 number of the *United Service Magazine*.

†Personally I prefer this branch to be designated the "Sanitary" as associated with environment, and the prevention of disease as well as with the individual; it will be so referred to in this paper.

proposals. The author of the non-medical officer executive sanitary scheme does not appear to have considered the question in all its bearings for it ignores the necessity of these officials possessing medical knowledge of the individual. Leaving out of consideration personal vulnerability to disease, which sometimes even the skilled physician finds difficult to distinguish, I would ask how is it possible with such an agency to take effective sanitary precautions in the case of large bodies of men gathered together in limited areas unless the health of the individuals composing them is kept under constant observation as well as the environment? With an army in the field the necessity is the greater because sanitary defects so speedily occur and are so quickly followed by epidemics, hence one case of epidemic disease, not promptly recognized, may give rise to incalculable damage. Besides this scheme fails to take account of the fact that the chief duty of the medical department is with the person of the soldier, and that everything which detracts from that position is injurious to the welfare of the individual and to the efficiency of the medical service.

This proposal seems not only to be based upon the non-recognition of the importance of sanitary work, but of the professional duties of regimental officers, which are to train the soldier and to fight and to beat the enemy. The proposal belittles both the work of the soldier and the work of the sanitarian. I have dealt with this subject at this length because it has obtained some support, but in my opinion it is quite unworkable. Another and better way will be found in the creation of a health branch of the medical department which, while maintaining the responsibility of commanding officers for the health of their men, will associate the medical service with these officers in executive sanitary duties in a more direct form than at present exists as will be more fully detailed in the course of this paper.

The treatment of the sick in hospital and during convalescence is taken together because until the soldier returns to duty, dies or is invalided the medical department should be the sole responsible authority. At the present time medical officers in command of hospitals enjoy perfect freedom in hospital administra-

tion, and the relations of the medical department to corps, to which patients in hospital belong, are generally satisfactory, but this is not the case as regards convalescents that is of men either attending hospital or who on discharge from hospital have not yet been returned to duty; this subject is important and will be referred to again. Some medical officers have claimed that authority should be given to them to punish offences committed in hospital, but this claim has been rightly objected to because hospitals should not be associated with punishment in the mind of the soldier. There are other objections, equally forcible, which need not be discussed for the disciplinary power of making patients prisoners for breaking hospital regulations, etc., is sufficient for all practical purposes.

Malingers apart, of whom by the way it has been my good fortune to have met but few, there appears to be a disinclination on the part of the soldier to go into hospital; it is a very natural feeling, but it has been recently discussed as if the fault lay with the medical service; without accepting this dictum there is no doubt that for the maintenance of harmonious relations between the medical department and armies it is essential that hospital life should be made as comfortable and as homely as possible; soldiers should look upon military hospitals in the same light as civilian patients do upon civil hospitals; comfort is not incompatible with the maintenance of discipline and obedience to orders. Also there should grow up a feeling of trust between the sick and the medical staff of the hospital, which the medical department should in every way foster. Confidence in a patient springs from belief in his medical attendant; it cannot be manufactured by order. For the medical department to attain to this position of usefulness it must be specialized, which will entail certain modifications of organization to be presently described.

Specialization of work and co-operation are the two most important factors in human progress; the former is seen in its greatest developments in the navies of the great powers, and for armies, though it has not been brought to the same excellence, it is recognized as a powerful means toward success. Recent scientific discoveries have put within individual reach an excel-

lence in professions and in trades, which a few years ago was not attainable, now it is a doctrine which is preached from the house-top and it confronts us in every walk of life. Specialties have been successfully followed by the medical profession in civil life, and the progress of medical science shows that they will be still further developed in the near future to the comfort and happiness of the human race. It is time for the medical department to take this lesson to heart.

The sphere of usefulness of the medical service has been greatly circumscribed because with its conservative instincts it has clung to the old idea that medical officers, once commissioned, were fit for any and every post their department chose to employ them in, it is an anachronism, and it is only a variant of the pleasant Irish extravagance that "one man is as good as another and six times better." It spells failure. The medical department must march with the times; in selection, if it be righteously used, lies the road of progress, but for this purpose the department must make itself acquainted with the merits of its officers as suggested in the article from which the following extract is taken.

"The first duty of the head of any department, and of none more than of the medical, is to make himself acquainted with the special merits of his senior officers. One medical officer may be a good physician, another a good surgeon, a third a good sanitarian, and a fourth a good organizer, while it is impossible to find all of these points of excellence in one and the same person there ought to be no difficulty for a department to be so informed that it would be able to employ its officers to the best advantage."\*

Without efficient and economical hospital administration the specialization of the department is impossible because of the expense, which can only be dealt with by gradation of work and co-operation of which the lowest rung of the ladder must be made the starting point. At the present time a great gulf separates medical officers from the non-commissioned officers and men of the medical corps, which must be bridged over. The work re-

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\*"Army Medical Organization" by Brigade Surgeon Lieutenant Colonel William Hill-Climo, M.D., Army Medical Staff (retired). December 1894 number *United Service Magazine*.

quires a highly technical training which the existing system of recruiting of the corps, and the previous education of its recruits make difficult, a subordinate medical service, such as exists in India, recruited from other classes and educated on a higher plane, is necessary; such a service would possess the confidence of the sick, and would be a sympathetic link between officers and men.

With the same object the nursing of the sick will have to be re-organized. It is a specialty for which women are best suited, they possess the natural gentleness and patience so necessary for this office besides they instinctively understand the details which make for comfort, details which the ordinary man looks upon as trifles, but which are of prime importance in the sick room. It is asking too much to expect these qualities in young men even when belonging to a superior class. Of course these changes will involve a re-organization of the army medical corps, which will afford the opportunity of utilising the services of the non-commissioned officers and men of the corps in other and not less important duties.

The care of convalescents, that is of men, who have returned to their regiments on discharge from hospital, but who are not yet fit for duty, has always been unsatisfactory; it affords another instance of divided responsibility between officers commanding regiments and the medical department; it is unsatisfactory to convalescents because, when they need it most, they are deprived of effective health supervision, but it is equally so to their comrades occupying the same barracks for they are thereby exposed to the danger of contracting such diseases as dysentery and enteric fever. The pernicious habit of allowing chronic cases of tuberculosis to live in barracks on discharge from hospital, while awaiting discharge from the service, needs no comment; financial, and not sanitary reasons have hitherto been chiefly considered. So also the detection of serious diseases in their early stages is made difficult and the segregation of infectious diseases is delayed by the want of personal supervision, which can only be secured by bringing the medical department into closer touch with the healthy soldier.

The measures which should be taken to prevent epidemic diseases in armies, are intended to meet two sets of conditions which are general and special; the former are common to all armies and relate to the soldier himself, to service and to military environment, and the latter to localities including endemic causes of disease and to climate.

Of the first set the conditions, which relate to the soldier, are his age and his state of health on enlistment, and his previous occupation. Certainly short service armies, which are raised by voluntary recruitment, are composed of younger men than formerly, and the youth of an army increases its susceptibility to epidemic diseases. The health of the recruit can only be determined from his appearance, his physical development, and a comparison of the causes of rejection with the diseases which the soldier suffers from during the first two years of his service. The direct effect of former occupation, that is of trade or employment is in many cases nil because the enlistment takes place at such an early age that sufficient time has not elapsed to produce permanent effects. Indirectly however the information which occupation gives of the social position, and of the environment of the recruit is of value in estimating the liability of an army to sickness, and its health efficiency in war.

- The toxic effects of military service acting on the young and immature soldier are well known to Army medical officers of experience, who alone are competent to deal with them. The point I want to make clear, it is all important, is that it is impossible to have an efficient sanitary service unless its executive officers possess medical experience as well as sanitary knowledge. The present sanitary organization of most armies does not conform to this principle, and in consequence little or nothing is done to put the soldier in a state of defence against zymotic diseases for the medical department has not the power of active intervention, though it is the only authority which could advantageously do so.

Military environment includes all other health conditions, which are common to large bodies of men living together in camps or buildings, which even when well drained and sewered, speedily undergo sanitary deterioration, and become dangerous

to health. It is the same in peace as in war though the defects in peace are not so obvious, nor their effects so immediate. The sanitary faults to which reference is now made, are not obtrusively objectionable, but they are insidious and potent for evil, and require a trained sanitary service for their detection and correction.

An army, which has to provide foreign garrisons, is confronted with health conditions, which are diverse in character, and which are referable to locality and to climate. Endemic diseases have to be considered in relation to topographical distribution, and to the sanitary habits of the people including their social and economic conditions; also the seasonal prevalence of such diseases as dysentery and enteric fever must be investigated in relation to rain fall, to sub-soil temperature, to prevailing winds, and to the rise and fall of underground water. These details are mentioned to show how imperfectly the sanitary service of armies is organized at the present time, for to make it efficient there is required a Medical Intelligence branch of the department to deal with all these questions. The success which has followed the measures taken by the medical department of the United States Army to banish yellow fever from Cuba, and of those, employed by the British Government on the West Coast of Africa and in the Delta of the Nile, to destroy the malarial pest, affords abundant proof.

In the foregoing statement I have described the ideal relations of the medical department to the health of armies in peace upon which their military efficiency in war so largely depends and for the better attainment of this object I suggested that there should be a closer union between the medical department and armies in the training and work of the soldier. I also showed how the present sphere of duty of the medical department fell short of the ideal, and that certain changes in its constitution were necessary, particularly in reference to specialization of work, and to co-operation, to enable it to comply with the demands of modern warfare, and to meet the larger responsibilities which public opinion has imposed upon it. I now propose to discuss the special preparation for war which the department should

undertake during peace; it does not primarily refer to the mobilization of hospitals or to details of equipment, etc., but to what has not been inaptly termed the medical strategy of war, which hitherto has received but scant attention, though local conditions relating to supply, to means of transport, and to the suitability of the regulation equipment to climate require previous careful study to avoid unnecessary expense and useless labor of which the proof will be given later on.

The student of military history, who has followed the great wars of the last century, will appreciate my standpoint for he knows that the health of the troops and freedom from epidemic diseases are two important factors towards the success of military operations, and he will call to mind how successful operations were delayed, or nullified because the troops were unable to continue their advance owing to sickness. It is a danger which the medical department should foresee and guard against. Owing to the increased effective range of Artillery, and of small arms larger armies will be employed, more ground will be covered, and military operations will be continued for a longer period before the decisive battle is fought. In such circumstances the sanitary police of an army in the field becomes extremely difficult and it can only be successfully undertaken by the previous study of the topographical and sanitary conditions of the country.

The general staff of an army has to consider all possible war eventualities and to formulate plans of campaigns. As these duties are confidential it is impossible to say what has been done by any of the great powers, or to what extent the medical department of their respective armies has been consulted, but judging from experience it may be assumed that medical strategy has obtained but slight recognition. In the pigeon holes of the war departments of most countries there will doubtless be found schemes of defence and plans of campaigns, but it is questionable whether side by side any one of them there lies an appreciation of its medical requirements worked out by the medical department from personal inquiry, and from an actual study of the country and of the people. A few years ago to have advanced this demand would have been flouted at as mere folly, but today we know



that the neglect to have done so put the vital interests of a great empire in jeopardy.

The medical history of the South African war is instinct with proof, and affords a concrete example of the evils which follow the want of intelligent preparation, and co-operation. It is painful at all times to call attention to failure, but especially when it is associated with grievous loss of life, yet it is only in the bitter experience which follows failure that the road to prevention will be found. The same lesson may be learned from other wars, but the South African war is chosen as an illustration for though foreseen by some its advent was sudden, and the scale on which it was waged conformed to what a war, occurring between any two of the great powers, will be. Sometimes we are told that the South African war was so exceptional that it ought not to be accepted for future guidance, but many of the circumstances incidental to every war are exceptional and it is on the recognition of this fact that the present argument is based, for no war in every respect resembles another though general principles remain the same. As the general staff of an army is judged by its capacity to foresee and to provide for exceptional circumstances so also it is the duty of the medical department, and on the completeness or otherwise with which it fulfills this duty, it must stand or fall.

The neglect to prepare for war in peace has been the cause of the want of provision for the care of the sick and wounded as well as for the prevention of epidemic diseases, or to again borrow from military phraseology it has caused failure in the medical tactics of war, which has led to needless expense, and to much useless work. For instance the rules and regulations which refer to the personnel and to the equipment of field and general hospitals, are inelastic being of universal application, and not framed to suit climatic and other special conditions such as local sources of supply, etc. It simplifies mobilization to have fixed scales of establishment and of equipment, but their adoption in each case should not be obligatory, on the other hand they should be so comprehensive that from them the mobilization branch of the medical department could work out what is best suited for the

particular country, which happens to be the seat of war. Sir Frederick Treves thus graphically describes these tactical difficulties as they were observed by him in the South African War.\*

"Every field hospital is hampered by a theoretically complete outfit, which has to be dragged to and fro all over the country and it is an immense burden; we were dragging about things that under no circumstances would have to be used in South Africa for example. The outfit of the Field Hospital is suitable for any climate in the world, from the Polar regions to the Equator, it is an exceedingly elaborate outfit, it is complete on paper, and that has to be dragged all over the country."

And again "There is a stereotyped outfit for a Field Hospital or for a Stationary Hospital, any kind of Hospital, and that outfit has to be absolutely complete to the very smallest detail, and that has to be dragged all over the country from one place to another whether it is wanted or not. I suppose I should not be using any exaggeration if I said we could have thrown away quite a half of our outfit and not missed it."

The failure to adapt hospital organization in war to meet local and climatic conditions, grave as it was, was not the worst fault disclosed by the war, for the want of preparation to cope with epidemic diseases showed a lack of knowledge of the sanitary conditions, which obtained in South Africa before the war. These were an impure water supply, subsoil pollution, the prevalence of dysentery and enteric fever as endemic diseases among the civil population, and above all the phenomenal prevalence of enteric fever among the British troops quartered there, which was relatively greater than in any other foreign garrison, including India, for the first nine months of 1899; in war therefore it was not an epidemic but a pestilence, which might be expected. This statement is made not as a reflection on the medical department of the British Army, but to show how necessary it is to make ample medical provision betimes.

Indulgence is craved for the importunity with which this subject is pressed, but its importance, and the persistent neglect, which it has met with, claim for it wider recognition. The ex-

\*Report of the Royal Commission on the War in South Africa. Minutes of Evidence Vol. II.

perience of France in Madagascar, of Spain in Cuba, and of the United States of America in the Cuban and Philippine Campaigns shows that effective sanitation in the field cannot be successfully initiated unless founded on a thorough knowledge of locality and climate, and a careful study of the sanitary and economic conditions of the people. Its importance to military strategy is thus referred to by Sir Alfred Fripp.\*

"That is a point the medical profession can be of great use and may strengthen the hands of the Commander-in-Chief, if only he will let us help to prevent disease. And then, what we cannot get him to see—I am not speaking of the Commander-in-Chief in the late war—but what we cannot get the authorities to see is the strategic importance of it, which comes out very prominently if the figures are examined. If you look at the number of patients sick in Bloemfontein, and then calculate how much it cost the Nation to put each one of these men to the front. I believe it works out about £100 a man, and they went sick by scores and hundreds, as you know, from a disease which was to a large extent preventable. Then again just consider how much sooner Lord Roberts' hands would have been set free to move from Bloemfontein and dash after the Boers up towards Johannesburg if it had not been for that heavy epidemic; and if he had been able to make that move forward earlier it would have saved the nation a considerable number of men, and a correspondingly large amount of money."

This preparation for war requires a staff selected and carefully trained, to it should be allotted certain countries for investigation and report. When war breaks out some of the officers, who had been thus associated with the country which becomes the seat of war, should be appointed to the staff of the P. M. O. of the army as Intelligence Officers, etc. To train these officers will take time and to do the work satisfactorily must necessarily be slow and tedious; if the lessons of war were not so soon forgotten there would be no necessity to urge its importance. Such a service cannot be improvised, it is not less true of this service than of other military services to which the following reference

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\*Report of the Royal Commission on the War in South Africa. Vol. I.

was recently made by Mr. Balfour, the British Prime Minister.\*

"You cannot improvise guns; they take months to make. You cannot improvise a staff; they take years to educate. You cannot improvise officers, mere enthusiasm will not give you trained experts which you require."

Upon the completeness of this preparation will depend the efficiency of the medical service in war, in which its duty is the care and treatment of the sick and wounded, and the prevention of epidemic disease; for the former transport and shelter are the most important: were it possible to house the sick where they took ill, and to treat the wounded where they fell the mortality in war would be but a tithe of what it is, but the care of the sick and wounded is dominated by military necessity, and to meet this demand the first duty of the medical service is to secure their removal in the direction in which they must ultimately travel, that is toward the base unless they quickly recover.

The question to which attention is now invited is whether the existing medical organization, in which are included the relations of the medical department to other corps and departments, is best suited for the treatment of the sick and wounded in war; the medical arrangements for the care of the wounded on the battlefield will best illustrate the point owing to the large number, which simultaneously requires to be attended to. This subject has been recently discussed with singular ability in the *JOURNAL OF THE ASSOCIATION OF MILITARY SURGEONS OF THE UNITED STATES OF AMERICA*.† The treatment of the wounded on the battlefield is intended (1) in all cases to prevent infection by the application of the first field or first aid dressing, (2) in a great number of cases to alleviate shock and (3) in a lesser number of cases to arrest hemorrhage. The sooner after the receipt of a wound it is protected from infection and on the skill with which this work is done will depend the chance of recovery. Colonel Nicholas Senn in the paper just referred to makes the following statement:

\*Extract from Mr. A. Balfour's speech at the United Club dinner at the Hotel Cecil, November 27th, 1903.

†"First Dressing on the Battlefield" by Colonel Nicholas Senn, M.D., Ph.D., LL.D., Chicago, Ill. Surgeon General of Illinois, Lieutenant Colonel and Chief of the Operating Staff with the Army in the field during the Spanish-American war; Professor of Surgery, Rush Medical College, Presented to the military section of the Madrid International Medical Congress. December 1903 number of the *JOURNAL*.

"In the treatment of the wounded, the first duty of the Military Surgeon at the front consists in protecting as many wounds as possible, and in the shortest space of time against subsequent infection, and this can only be accomplished by the first aid dressing, which meets all essential requirements, if properly applied."

The agency by which this dressing should be applied has been the subject of much controversy. Some authorities assert that only medical officers should do it, while others say that the non-commissioned officers and men of the army medical corps should assist, but it is manifestly impossible after a great battle for the officers and men of the corps alone to perform this duty *in time*; it follows that the wounded will have to do it for themselves or they will have to be assisted by their comrades.\* On this point Colonel Senn's conclusions are.

"In all great wars the number of wounded exceeds the working capacity of the medical officers at the front, and consequently most of the first-aid dressings must be applied by the wounded themselves, their comrades and non-professional non-combatants."

He enforces his views by giving the number of wounded in some of the great battles of the past, of which the following is an extract.

NUMBER OF WOUNDED IN GREAT BATTLES OF THE PAST.

Battle of Inkerman	Russians	9,406
" " "	French and English	13,709
" " Gettysburg	Federals	13,709
" " "	Confederates	14,500
" " Sedan	French	14,000
" " "	Germans	6,483

Surgeon General Stevenson, Professor of Military Surgery in the Royal Army Medical College, London, holds the same opinion, and he shows how impossible it is even to collect the wounded, much less to remove them to the dressing stations and field hospitals, on the day of battle as shown in the following extract.†

\*In any future reference to this dressing it will be described as "first aid," which so felicitously conveys the idea of agency.

†"Wounds in War. The Mechanism of their Production, and their Treatment." By Surgeon General W. F. Stevenson, C.B., M.S. etc. etc. Professor of Military Surgery Royal Medical College, London, etc. etc.

"It will, I believe, be apparent from the view of the circumstances under which the wounded can be collected and carried from the field, that the old methods of performing these duties are no longer suitable to the present conditions of warfare and must be abandoned."

Also "The unattainable ideal must be given up and what is the best possible must be substituted for it. It need not be expected in future warfare, as formerly, that all the wounded shall be carried to the field hospitals, and their wants attended to, on the day of a battle; it will be a physical impossibility. As many of them as may be must be so cared for, and more than this cannot be hoped for from a medical service. The rest of the wounded must take their chance; and in proportion as these others are numerous, so will the horrors and sufferings of war be increased."

Were it possible to devise some means of quickly discriminating on the battlefield the more serious cases of wounds which require immediate surgical attendance from those which may safely be left to unskilled hands, though it would not solve the difficulty, it would greatly lessen it. It must be remembered that in making medical arrangements for war it is not the sick and wounded only which have to be considered but the *morale* of the army on which its fighting power depends, hence the medical arrangements must be so perfect that the army will have full confidence in them, and will go to battle fortified with the knowledge that everything which is possible will be done for them. It cannot be said that the existing medical organization begets this confidence, but to suggest how it is to be secured is one of the objects of this paper.

The impossibility of removing all the wounded to dressing stations and to the field hospitals on the day of battle has been fully demonstrated; the solution of this question will neither be found in any increase of transport, which is practicable nor in the shifting of responsibility from one department to another which has been frequently advocated but in the adoption of some means of succouring the wounded nearer to the battlefield. While the medical department must be held responsible for the

treatment, the general comfort, and the sanitary environment of the sick by road and by rail the responsibility for the equipage including vehicles, animals, and their attendants and for the general management must remain with the transport department, just as railway officials are held responsible for the railway plant, and trainservice, but the medical department must possess the authority to fix the hours for travelling and the rate of progress, which urgent military necessity alone should be allowed to interfere with, for upon compliance with these instructions the lives of the sick may depend. This is the principle underlying the medical organization of the Japanese Army, which we know is so admirable, it is that special work requires special agents, and that unskilled work may be left to unskilled hands.

The prevention of epidemic diseases in armies is the most important duty of the medical department in war; for the reasons already given the medical history of the South African war will be referred to in support of this statement. The following tables give the total casualties—deaths and invalids—from the beginning of the war up to the 31st of May 1902.\*

TABLE I.

DEATHS.	NON-COMMISSIONED OFFICERS AND MEN
Killed in action.....	5,256
Died of wounds.....	1,835
Prisoners who have died in captivity.....	97
Died of disease.....	12,911
Accidental deaths.....	771
Total.....	20,870

TABLE II.

INVALIDS SENT HOME.	NON-COMMISSIONED OFFICERS AND MEN.
Wounded.....	8,221
Sick.....	63,644
Not specified which.....	449
Total.....	72,314

\*These tables are extracted from the article: "The Medical Organization of Brigades and of General Hospitals in War" by Brigade Surgeon Lieutenant Colonel William Hill-Climo, M.D., Army Medical Staff (retired), in the December, 1902 number of the *United Service Magazine*.

Practically of the total number of casualties—deaths and invalids—the proportion due to disease, chiefly epidemic, compared with those caused by wounds—was 5 to 1. The two chief diseases which caused military inefficiency during the war were dysentery and enteric fever. The following table gives the admissions and death rates for these diseases during the first two years of the war.\*

	PERIOD.	ADMISSIONS.	DEATHS.	PERCENTAGE OF
				DEATHS TO ADMISSIONS.
For Dysentery	1st Year	11,143	546	4.9
	2nd Year	13,131	427	3.2
For Enteric Fever	1st Year	15,655	3,647	23.2
	2nd Year	15,463	2,530	16.3

The following summary of the facts is taken from this Report, which at the same time shows the relative importance of dysentery and enteric fever.

"During the two years beginning in October, 1899, and ending in September 1901 there were approximately 24,294 cases of dysentery with 973 deaths, while during the same period there were 31,118 cases of enteric fever with 6,172 deaths, which represents for enteric fever alone nearly an army corps."

And again, "The actual number of deaths from enteric fever amounted to more than six and a half times that of dysentery in the first year, and slightly less than six times in the second year."

The evidence of Lord Roberts, the Commander-in-Chief of the South African Army, is to the same effect more especially in regard to enteric fever.†

"I got to Bloemfontein on the 13th of March, and during the first week there were no deaths from enteric; it began in the second, and it continued gradually, very nearly in regular proportion, until about the middle or end of May. The total number of admissions from the 13th of March to the 13th November, 1900, for all cases, was 16,167, and of those 4,667 were enteric cases, roughly speaking. The deaths from all causes were 1,050 and of these 891 were enteric within that time."

*(To be continued)*

\*Report of the Commission on "The Nature, Pathology, Causation and Prevention of Dysentery, and its Relationship to Enteric Fever," appointed by the Secretary of State for War.

†Report of the Royal Commission on the South African War.



## Contemporary Comment.

### THE RELATIVE SANITARY CONDITION OF DIFFERENT EUROPEAN ARMIES.

TO a recent number of *La Revue*, Dr. Lowenthal has contributed an important article on the sanitary condition of the French and German armies, which deserves more than incidental notice, especially as it helps to throw some light on our English army vital statistics. He points out that in the midst of all the attention which is being devoted to securing perfect armies, it is time that the soldier himself receive attention, and that the "effrayante" mortality and morbidity of the French army should be carefully studied. This view is fortunately making headway. M. de Freycinct has crystalized it in the statement that "la bonne santé d'une armée est la première condition de sa puissance," and the French calamities of 1870 are ascribed in part to the deplorable state of its army and its decimation by infectious diseases, from which the Prussian army was relatively exempt.

An initial difficulty is how to state the extent of the evil numerically in a manner which will be accurate and at the same time comparable with the statistics of other countries. The facts adduced by Dr. Lowenthal indicate that an international agreement should be secured, ensuring that the vital statistics of the chief European armies should be so compiled as to be strictly comparable. Thus the French army statistics are calculated on total numbers, the German on effective numbers; the French statistics include officers with men, the German very wisely do not. But allowing for these sources of error, and for difference in the average age of each army, it is instructive to contrast the experience of the French and German armies. The main results of

this comparison, together with similar comparisons with the experience of the English army are here given. In making this comparison allowance needs to be made for the fact that the French and German armies are conscript, and it is possible that fewer exclusions for initial defects occur in these countries than enlisting for the English army.

In 1846-59 the general death-rate in the French army was 16 per 1,000, in 1901 it was only 5.37 per 1,000. This appears to point to immense improvement, and the view that such improvement has occurred, as in the analogous case of the English army, is unhesitatingly taken by most writers. Dr. Lowenthal has, however, little difficulty in pricking this statistical bubble. Great alterations have occurred in the proportion put on half pay and retired (*les réformes et les retraites pour maladies*). In 1863 these were 6.6, in 1895 they were 28.9 per 1,000. Those who formerly died in the army, now die after being dismissed or retired from it. Until or unless this source of error is eliminated, little stress can be laid on the lowered death rate shown above. That this contention is correct is further indicated by the fact that the morbidity rate has slightly increased, while the death rate has so remarkably declined. Thus it was 587 per 1,000 in 1862-9 and 631 in 1901. We are therefore driven to the conclusion that the greater part at least of the decline in the death-rate of the French army is due to sick men being more frequently retired.

Compare this with the reduction of the death-rate of the British army in the United Kingdom from 11.5 in 1870 to 6.2 per 1,000 in 1901. How much of this is due to real improvement in the conditions of life of the soldier, and how much to changes in length of service and in the system of drafting sick men out of the service? The contrast of the figures for the English and French armies with those for the German army is very striking, the death-rate (not including officers) being in 1901, 5.11 per 1,000 in the French and 2.23 per 1,000 in the German army.

Dr. Lowenthal then proceeds to compare the incidence of special diseases on the French and German armies respectively in the following tables.

ENTERIC FEVER.

	MORBIDITY.	MORTALITY.
	Per 1,000 men.	Per 1,000 men.
French army at home .....	4.88	0.71
German " " .....	1.60	0.17
British " " .....	1.60	0.29

The figures as to small-pox are equally striking.

CASES OF AND DEATHS FROM SMALL-POX.

	CASES.	DEATHS.
French army.....	8,974	739 (in the peri-
German " .....	16	3) od 1875-01
British " .....	6	1 in the yr. 1901.

The figures for scarlet fever and diphtheria are also suggestive:

	SCARLET FEVER		DIPHTHERIA.	
	Morbidity	Mortality.	Morbidity	Mortality.
French army .....	5.98	0.24	2.05	0.08
German " .....	0.81	0.04	0.59	0.01
British " .....	4.50	0.03	0.70	0.02

But the most significant figures are those dealing with tuberculosis, and they confirm very strikingly the view that mortality statistics are very misleading as an indication of the true health conditions of an army. During 1877-80 the mean death rate from tuberculosis in the French army was 1.35 per 1,000, in 1901 it was 0.98; but during the same period the morbidity rate from tuberculosis rose from 2.37 to 7.20 per 1,000 an increase of 200 per cent. The real increase is greater than these figures show, for as Dr. Lowenthal points out, an increasing number of tuberculosis patients are eliminated from the army without passing through the hospital. That this is the true explanation is shown by the fact that the number put on half-pay and retired owing to tuberculosis has increased from 2.80 per 1,000 in 1877-87 to 6.91 in 1901.

Although the figures are perhaps not absolutely comparable the following table is most suggestive:

1901: RATES PER 1,000: TUBERCULOSIS.

	Morbidity.	Mortality.	Invalided	Total loss
French army.....	8.30	1.05	8.15	9.20
German " .....	2.00	0.26	1.51	1.77
British " .....	4.90	0.71	0.59	1.30

The whole of Dr. Lowenthal's article will well repay study. In view of the figures from which we have made a few extracts, it is not surprising that Dr. Lowenthal concludes that in the present condition of things as to morbidity and mortality, the French army, which ought to be a school of sanitation and hygiene, as it is a school of courage and self denial, constitutes on the contrary one of the most powerful factors for the physical enfeeblement and the depopulation of the country, owing to the excessive amount of sickness and mortality, and above all, owing to the number of moribund persons, of semi-invalids and invalids who leave it year by year.

The whole subject of army statistics needs co-ordination and reorganization. An international agreement is required as to the statistical methods to be pursued, in order that results may be compared. Above all, it is necessary, so far as England is concerned, that optimism should not be allowed to prevail as to the sanitary conditions in which our soldiers and sailors live, that careful investigation should be made and reforms instituted, in order that in the case of our own national forces it shall not be said that men are discharged in large numbers who subsequently become a burden on the community owing to their health having been permanently damaged while engaged in the country's service.

*British Medical Journal.*

#### HOSPITAL TRAINS IN RUSSIA.

**R**EGULATIONS concerning the organization of hospital trains have just been issued in Russia. The military hospital train is composed of sixteen cars; six of these are reserved for the sick, and the others constitute a movable hospital, with all the modern conveniences. Each train has three doctors, five assistants, and five sisters of charity, with a certain number of ward attendants. The number of hospital trains is not limited, and such number of trains will be made up as is required by the army, the Red Cross Society, or by any other society. Each train must transport not less than 250 sick and wounded.—S. M. DELOFFRE.

# Medico-Military Index.

## MEDICO-MILITARY ADMINISTRATION.

**Pope (J. W.)** Three stages of army penology. *J. Mil. Serv. Inst.*, U.S. Governor's Island, N.Y.H., 1904, xxxv, 37-42.

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## MEDICO-MILITARY HISTORY AND DESCRIPTION.

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THE HONORABLE JAMES MCHENRY.  
MILITARY SURGEON AND SECRETARY OF WAR,—1753-1816.

## Editorial Expression.

### Medico-Military Secretaries of War.

JAMES McHENRY, MILITARY SURGEON AND  
SECRETARY OF WAR.—1753-1816.

VERY rarely has a single individual the pleasure of the intimate friendship of four such men as George Washington, the Marquis de la Fayette, Alexander Hamilton and Benjamin Rush. This distinction fell to the lot of a young Irish doctor, James McHenry, who was born to Daniel and Agnes McHenry at Ballymena, County Antrim, on November 16, 1753. When about eighteen years of age he took a voyage to America for his health and was so charmed with the country that he persuaded his father to come over and engage in business in Baltimore. Young James after passing some time at Newark Academy, a noted Delaware institution, repaired to Philadelphia and engaged in the study of medicine under Benjamin Rush then emerging above the professional horizon as a medical luminary of the first magnitude.

He was fully imbued with the patriotic principles of his preceptor, and when the Revolutionary War broke out, at his own expense journeyed to Cambridge and volunteered his services at the American Hospital. He was not long however without official position, for on August 10, 1776, he was commissioned Surgeon of the Fifth Pennsylvania Battalion commanded by Colonel Robert Magaw and one of the finest organizations in the army. It was barely two weeks later on August 26, that Congress evidently sensible of the desirability of utilizing McHenry's services to the best advantage, adopted the following resolution which Dr. Rush considered did the young medical officer as much honor as if they had made him director of a hospital:

*Resolved*, that Congress have a proper sense of the merit and services of Doctor McHenry, and recommend it to the directors of the different hospitals belonging to the United States, to appoint Doctor McHenry to the first vacancy that shall happen of surgeon's berth in any of the said hospitals.

McHenry was not yet destined, however, to be employed as a hospital surgeon, for his battalion was for the next three months engaged in operations active enough to satisfy his utmost ambitions and on November 16, 1776 he was taken prisoner with his command at the capitulation of Fort Washington. After a couple of months' confinement he was paroled and compelled to remain idle until early in May 1778, when he was finally exchanged and went on duty as Senior Surgeon of the Flying Hospital.

It was but a few days, however, before he was ordered to headquarters and assigned to duty as Secretary to the Commander-in-Chief, an event which marked the permanent termination of his medical practice. The relations which henceforth existed between the stern and reserved Washington and his brilliant and tactful young aid were cordial in the extreme. This happy relationship continued until 1780, when he was relieved from duty with the Commander-in-Chief and assigned nominally as aide-de-camp but really as guide, philosopher and friend to the youthful and enthusiastic Marquis de la Fayette, who had been commissioned as a Major General in the American establishment. In May 1781, Dr. McHenry was commissioned as Major to date from the preceding October.

In September, 1781, when still with la Fayette before Yorktown, McHenry was elected to the Maryland State Senate, an office which he held for the ensuing six years. Meanwhile he was also elected to Congress of which he was a member from 1783 to 1786. He was a member of the Constitutional Convention of 1786; in 1788 and 1789 he was a member of the General Assembly; and from 1791 to 1795 he again represented his district in the State Senate.

His appointment by Washington in January, 1791, as Secretary of War, however, took him out of state politics and carried him once more into the national arena. The work of the War Department remained in his hands thenceforth through the administration of Washington and on into that of John Adams.



When war with France seemed unavoidable in 1798, he had the supervision of the preparations for the conflict; and here his medical knowledge rendered him of peculiar value to the country, enabling him to speak with authority when he wrote to Congress, that "the Secretary does not discover in any of the Acts the necessary provision for the appointment of hospital officers or a hospital establishment. As military hospitals are indispensable to an army especially in time of war, it is respectfully suggested that provisions on the subject ought to be made by law, and that the regulations to be found in the resolutions of the old Congress, more particularly in those under date of September 30, 1780 and January 3, 1782, as certainly the faithful results of much experience, may afford some important lights respecting this Department. The certain consequences of disregarding so essential a measure in the event of war and the encampment of an army will be a train of diseases which must cut off a large proportion of our troops." The result of this judicious reminder was the act of March 2, 1799 providing for the best medical organization the Army had ever possessed.

The later years of Secretary McHenry's administration were marred by misunderstandings and disagreements with President Adams, largely because of McHenry's attachment to his old friend and comrade in arms, Alexander Hamilton, and on May 13, 1800 the strained relations culminated after a stormy discussion with his chief, in the resignation of his portfolio.

From this time he withdrew from public life and lived quietly upon his estates adjacent to the city of Baltimore, where his services to his state and to his country were worthily commemorated by the neighboring works of Fort McHenry, which have permanently preserved his name in the military annals of the nation, and in which, oddly enough the services of another military medical officer have recently been commemorated by the bestowal of his name upon one of its batteries,—Battery Lazear. Living then in elegant retirement but by no means in idleness, Dr. McHenry survived, a respected and honored citizen of the commonwealth, until his death, May 3, 1816.

## THE PREPARATION OF SPECIMENS IN THE ARMY MEDICAL MUSEUM.

IN the JOURNAL for October, 1904, p. 318, is a statement by Dr. Ehrlich of Giessen (translated by Dr. F. H. Garrison of the Army Medical Library) that it seems to me needs to be corrected because if true it would not be altogether creditable to the Museum. The statement is as follows:—"The preparations of tropical diseases also awaken lively interest, but are unfortunately bleaching out, by being kept in alcohol, and have lost their natural colors. I called the attention of the Pathologist to the methods employed in Germany, (*i.e.* Kaiserling's method) of preserving specimens in saline solutions, which it seems are not generally known in America."

As pathologist of the Museum I have no recollection of having met Dr. Ehrlich at the visit he writes about. The tropical specimens he mentions came from the Philippines and have been in Kaiserling ever since they were removed from the bodies. I myself think that considering the circumstances under which they were obtained, the heat, etc., they show color quite well.

I would like to add that the Kaiserling method has been in use at this Museum nearly eight years. It may not be generally known that the method was *intended* for the preservation of specimens *in the dark*. However, this Museum and I think from what I am told and have seen that almost all the Museums in the United States are using this method or some modification of it. Of course a matter of several hundred specimens in more than ten times that number of alcoholic preparations and in a Museum of many more thousand specimens might not be noticed by a casual visitor, but they are there. The historical value of many of these specimens must not be forgotten.

It seems to be necessary to add that there are three classes of wet specimens received at the Museum; one class in which the preliminary preservation has been in a fluid that precludes either keeping the natural color or restoring it after arrival of the specimen at the Museum; in which case it would be useless to take the trouble of the Kaiserling process; a second class in which *embalming* of the body has taken place by the use of a fluid that

partially destroys the natural color, in which case the Kaiserling could do no more than preserve the color as modified by the embalming. The third class includes fresh specimens which naturally are in the minority, and besides may not show much color anyway; but in these the process may be used with expectation of success. There are specimens in the Museum especially lung and brain preparations which I do not think can be surpassed anywhere for beauty of color preservation. All these preparations have passed through my hands. I may remark in passing that the periods of immersion in the Kaiserling process take no account of Sundays or holidays or day or night, as I have often found by the necessity of my looking after it at odd hours; for which reason it is a waste of time to use it unless its use is indicated by the circumstances—D. S. LAMB.

#### MILITARY SURGERY IN THE RUSSIAN FORCES.

A VERY interesting series of letters by Dr. Hohlbeck of the Russian service has been appearing in the *St. Petersburg Medizinische Wochenschrift*. He reports that the Senn first aid packet is being used with great advantage, the adhesive plaster fastenings combined with the small size of the bullet wounds, reducing the amount of dressing to the minimum, so that one small packet serves for an extraordinary number of wounds. He also finds the rubber gloves recommended by Zoege von Manteuffel, of much advantage in field surgery, where they are carried, each pair sterilized in a separate bag, such as to render them readily available for applying dressings and for operations of all kinds. The shrapnel wounds are the most severe, each bomb containing about 260 shot and inflicting injuries with all the disadvantages of the old lead bullet. Other shells are of comparatively little danger, exploding with such force as to become separated into particles so small as to inflict relatively little damage. The small-arm wounds inflicted by the Japanese rifle are less serious than those of the Lee-Metford or Mauser bullets observed by the writer in the Boer War, even perforating the shaft of a bone without solution of continuity. The chief enemies of the surgeon are the penetrating dust and the swarms of flies everywhere prevalent.

## News of the Services.

Medical Inspector F. Anderson, U.S.N., ordered from the *Brooklyn* to waiting orders.

Assistant Surgeon J. W. Backus, U.S.N., ordered from the Portsmouth Naval Hospital to the *Southery*.

Assistant Surgeon R. A. Bachmann, U.S.N., ordered from the *Wilmington* to the *Villalobas*.

Surgeon Charles Edward Banks, P.H.&M.H.S., ordered from Chicago, Ill. to Key West, Fla.

Lieutenant Charles Norton Barney, U.S.A., ordered from Fort Schuyler to the Philippines.

P. A. Surgeon F. L. Benton, U.S.N., ordered to the Philadelphia Naval Recruiting Station.

Major H. P. Birmingham, U.S.A., ordered to inspect Jackson Barracks and Fort St. Philip.

Assistant Surgeon L. W. Bishop, U.S.N., ordered from the New York Navy Yard to the Portsmouth Naval Hospital.

Lieutenant James Bourke, U.S.A., on temporary duty at the New York Supply Depot.

Lieutenant P. L. Boyer, U.S.A., relieved from duty in the Philippines, May 12, 1905.

Lieutenant Roger Brooke, Jr., U.S.A., relieved from duty in the Philippines, May 12, 1905.

Dr. George R. Clayton, U.S.A., ordered to accompany troops from Columbus Barracks to Fort Sheridan.

Dr. Albion McD. Coffey, U.S.A., ordered from Fort Worden to temporary duty at Fort Lawton.

Medical Director C. H. Cooke, U.S.N., placed upon the retired list.

Lieutenant Charles F. Craig, U.S.A., ordered from the Presidio General Hospital to the Philippines.

Dr. S. Chase de Krafft, U.S.A., ordered to accompany Battalion of Philippine scouts to the inauguration.

P. A. Surgeon C. H. DeLaney, U.S.N., ordered from the *Petrel* to the *Marblehead*.

Lieutenant Samuel M. DeLoffre, U.S.A., granted one month's leave.

Dr. Clarence F. Dickenson, U.S.A., ordered to Fort Logan, Colo.

Lieutenant Charles W. Farr, U.S.A., ordered from Fort Mason to the transport *Thomas* and to duty in the Philippines.

Lieutenant Peter C. Field, U.S.A., ordered from Fort Robinson to the Philippines.

Assistant Surgeon T. G. Foster, U.S.N., ordered to the Norfolk Navy Hospital.

A. A. Surgeon J. B. Fowler, P.H.&M.H.S., granted thirty days leave.

P. A. Surgeon L. D. Fricks, P.H.&M.H.S., ordered from Guayaquil, Ecuador, to the Immigration Depot, New York, N.Y.

P. A. Surgeon P. M. Furlong, U.S.N., ordered from the *New York* to waiting orders.

P. A. Surgeon C. H. Gardner, P.H.&M.H.S., ordered from Key West, Fla., to Galveston, Texas.

COMPANY A, HOSPITAL CORPS U.S. ARMY.—The accompanying illustration shows the Washington Company of the Army Hospital Corps at inspection. This Company is doing most excellent work under the command of Lieutenant Harry L. Gilchrist, Medical Department, U.S. Army.



Colonel Alfred C. Girard, U.S.A., will be retired on April 6 with the rank of Brigadier General. Colonel Girard was one of the first members of the Association of Military Surgeons, was one of the Committee which designed its badge, and has been invariably constant in his friendship for the organization, which extends to him its most cordial congratulations upon his appointment as Brigadier General prior to his retirement from the service,—a promotion which his eminent services to his country and to the medical profession most heartily justify.

Lieutenant George H. R. Gosman, U.S.A., ordered from Fort Caswell to the Philippines.

Captain Joseph A. Hall, O.N.G., has been detailed as a member of the personal staff of Governor Herrick of Ohio.

Lieutenant James F. Hall, U.S.A., relieved from duty in the Philippines, May 26, 1905.

Dr. Francis A. Halliday, U.S.A., ordered from Fort McPherson to Fort Caswell.

Lieutenant P. S. Halloran, U.S.A., relieved from duty in the Philippines-May 12, 1905.

Lieutenant George P. Heard, U.S.A., relieved from duty in the Philippines, May 26, 1905.

P. A. Surgeon V. G. Heiser, P.H.&M.H.S., appointed Health Commissioner of the Philippine Islands, in addition to duty as Chief Quarantine Officer.

Captain William Hendry, O.N.G., was killed on March 3, 1905, by a railroad accident while accompanying the Engineer Corps of his state to the inauguration of President Roosevelt. Captain Hendry had been a member of the Association since 1901.

Lieutenant Park Howell, U.S.A., ordered from Fort McPherson to Manila, P. I., accompanying the 16th Infantry.

Dr. Preston S. Kellogg, U.S.A., returned to Fort Robinson from temporary duty at Fort Crook.

Dr. Preston S. Kellogg, U.S.A., ordered to accompany the 6th Cavalry to the Philippine Islands and to report for duty there.

P. A. Surgeon D. B. Kerr, U.S.N., ordered from the *Buffalo* to the *Boston*.

Dr. H. Newton Kierulff, U.S.A., ordered from the Presidio to the transport *Buford*.

Lieutenant C. E. Koerper, U.S.A., relieved from duty in the Philippines, May 12, 1905.

Dr. Robert Lemmon, U.S.A., ordered from Fort Wadsworth to temporary duty at Fort Schuyler and upon its completion to Fort McKinley.

A. A. Surgeon Esteban Lopez, P.H.&M.H.S., granted one month's leave.

Assistant Surgeon J. D. Manchester, U.S.N., ordered from the *Marblehead* to the *Petrel*.

Dr. Marion F. Marvin, U.S.A., relieved from duty in the Philippines and ordered to Fort Robinson.

Assistant Surgeon R. H. Michels, U.S.N., ordered from the *Villalobos* to the *Wilmington*.

Assistant Surgeon J. Miller, Jr., U.S.N., ordered from the *Boston* to the *Buffalo*.

Lieutenant A. W. Morse, U.S.A., granted one month's leave.

Lieutenant A. W. Morse, U.S.A., ordered from Vancouver Barracks to accompany the 19th Infantry to Manila where he will report for duty.

Lieutenant John A. Murtagh, U.S.A., ordered from the transport *Thomas* to Fort Mason, Cal., and as attending surgeon and examiner of recruits in San Francisco.

Surgeon F. S. Nash, U.S.N., promoted to Surgeon.

Lieutenant Kent Nelson, U.S.A., relieved from duty in the Philippines, May 26, 1905.

Surgeon O. D. Norton, U.S.N., ordered to the *Olympia*.

Lieutenant R. P. O'Connor, U.S.A., relieved from duty in the Philippines, May 12, 1905.

Lieutenant R. U. Patterson, U.S.A., relieved from duty in the Philippines, May 12, 1905.

P. A. Surgeon J. H. Payne, U.S.N., ordered to the *Pennsylvania*.

Lieutenant James M. Phalen, U.S.N., relieved from duty in the Philippines, May 26, 1905.

Lieutenant R. H. Pierson, U.S.A. granted forty days leave of absence.

Captain William W. Quinton, U.S.A., relieved from duty in the Philippines, May 26, 1905.

Lieutenant Charles Ragan, U.S.A. relieved from duty in the Philippines, May 26, 1905.

Lieutenant John J. Reilly, U.S.A., granted six months sick leave.

Lieutenant William A. Reno, U.S.A., assigned to temporary duty on the transport *Sumner*.

P. A. Surgeon S. S. Rodman, U.S.N., ordered from the *Pensacola* to the *Ranger*.

Surgeon G. Rothganger, U.S.N., ordered to the Norfolk Naval Hospital.

Lieutenant E. L. Ruffner, U.S.A., relieved from duty in the Philippines, May 26, 1905.

A. A. Surgeon L. H. Schwerin, U.S.N., detached from the *Abarenda* and placed on waiting orders.

A. A. Surgeon L. H. Schwerin, U.S.N., ordered to the *Hancock*.

Dr. J. E. Shellenberger, U.S.A., returned from Jackson Barracks to Fort Sam Houston.

Major Paul Shillock, U.S.A., granted one month and a half leave.

Surgeon G. T. Smith, U.S.N., ordered from the Norfolk Naval Hospital to waiting orders.

Lieutenant Herbert M. Smith, U.S.A., ordered from the transport *Sherman* to the Presidio General Hospital.

Surgeon J. M. Steele, U.S.N., ordered from the *Olympia* to the *Brooklyn*.

Captain John H. Stone, U.S.A., granted four months leave.

Assistant Surgeon E. C. Taylor, U.S.N., ordered from the *Bancroft* to the *Colorado*.

Dr. Elmer S. Tenney, U.S.A., ordered from Allston, Mass. to Fort Strong.

Dr. Charles W. Thorp, U.S.A., ordered from Fort Ethan Allen to temporary duty at Fort Adams.

Major Charles S. Turnbull, N.G. Pa., announces the marriage of his daughter, Miss Elizabeth Turnbull, to Lieutenant Hamilton Disston South, U.S.M.C., who has been ordered to take command of the Marine Forces at the Agana Naval Station.

Surgeon C. P. Wertenbaker, P.H. & M.H.S., ordered to duty in the office of the U.S. Consul General, Havana, Cuba.

Major Joseph B. Whiting, Jr., W.N.G., a veteran of the Spanish-American War, and long a member of the Association of Military Surgeons, died suddenly at his home in Janesville, Wis., on February 19, 1905.

Lieutenant E. R. Whitmore, U.S.A., relieved from duty in the Philippines, May 12, 1905.

Captain William H. Wilson, U.S.A., relieved from duty in the Philippines, May 12, 1905.

Captain William H. Wilson, U.S.A., granted four months leave.

Lieutenant William P. Woodall, U.S.A., relieved from duty in the Philippines, May 26, 1905.

Dr. Stephen Wythe, U.S.A., ordered from Fort Baker to Angel Island.

**HOW TO LIVE.**—A strictly ethical and scientific journal of popular medicine, under the title of *How to Live*, is issued by the George F. Butler Publishing Company of Ravenswood Station, Chicago. Such a publication has been greatly needed, and this one has our best wishes for its success.

**FAILURE OF THE ARMY MEDICAL BILL.**—The last number of the *JOURNAL* had hardly been issued when the failure of the Army Medical Bill was announced, because of the determination of Speaker Cannon not to permit a vote upon any measure which should carry an increased appropriation. It will be brought up again at the next session and, it is anticipated, will then soon become law.

**THE AMERICAN AND JAPANESE ARMY MEDICAL DEPARTMENTS.**—In our last number we credited an exceptionally appreciative and intelligent statement of the merits of the American Army Medical Corps to the *Baltimore Sun*, an error all the more inexcusable since the *Baltimore Sun's* statement was of a directly contrary kind. The correct credit should have been assigned to the *Army and Navy Journal*, the distinguished editor of which has always maintained the most accurate and courteous attitude toward the American Army Medical Department.

**HYGIENIC CONDITIONS IN MANCHURIA.**—A note from Colonel Havard, who had reached Harbin, remarks that, "Manchuria seems to be a very healthy country, being free from malaria and other endemic diseases. At all events there is a remarkably small ratio of sickness among the Russian troops, and whether this is due to any unusual and exceptional hygienic precautions by our confreres of the Russian Army remains to be investigated." Since writing the above, Colonel Havard has been taken prisoner at Mukden and will be returned to the United States, leaving this country without a medico-military representative among the forces of Russia.



## Current Literature.

### TYPHOID FEVER IN THE SPANISH-AMERICAN WAR.\*

**T**HIS monumental work marks an epoch in the study of camp diseases. Its completeness and thoroughness is worthy of the highest commendation and its conclusions are consequently the most authoritative in the history of enteric fever. The work of investigation was made by the entire Board, whose visits are remembered with great interest by the medical officers who served in the United States military camps in 1898. The general conclusions were published several years ago and are familiar to students of military medicine who are now favored with the unabridged details upon which those conclusions were founded.

### KELLY ON THE APPENDIX.†

**I**N the magnificent work of Kelly the medical monograph has reached the high water mark. For thoroughness, lucidity and completeness, it surpasses any work of the kind that has come under the writer's notice. This is well justified by the important position which appendicitis now holds in the work of the profession. The history, anatomy, physiology, bacteriology and pathology are taken up in great detail. The clinical history, etiology, diagnosis and complications receive full and careful consideration. The operation in its various forms is described with

\**Report on the Origin and Spread of Typhoid Fever in the United States Military Camps During the Spanish War in 1898.* By Majors WALTER REED, VICTOR C. VAUGHAN and EDWARD O. SHAKESPEARE. Prepared in accordance with Act of Congress under the direction of Surgeon General Robert M. O'Reilly, U.S.A. Vol. 1; 4to.; pp. 721. Vol. 2. Maps and Charts. Folio; pp. 400. Washington. Government Printing Office, 1904.

†*The Vermiform Appendix and Its Diseases.* By HOWARD A. KELLY, M.D. and E. HURDON, M.D. Imp. 8vo; pp. 827, with 399 original illustrations, some in colors, and three lithographic plates. Philadelphia and London, W. B. Saunders & Co., 1905.

the minutest detail. The after-history and intercurrent accidents are gone over with much care,—and the whole forms a work so useful as to adapt it, not only to the surgical specialist, but to the work of every practitioner. In the matter of illustration it is the most sumptuous work issued from the medical press since the days of Spigelius, Bidloo and Cowper. The limitation of the size of the page has not been considered, folders having been provided wherever the size of the illustration transcends that of the page. The typography and mechanical execution of the work is unexceptionable and both the authors, the publishers, and the medical profession are to be congratulated upon the result.

#### INTERNATIONAL CLINICS.\*

**T**HE fine series of practical medical and surgical studies, published quarterly under the title of *International Clinics*, continues in the fourth volume of the fourteenth series to sustain the reputation achieved by earlier issues. The present volume presents much that is of interest and value to the active practitioner and may well form an important element of his armamentarium.

#### A BOOK ABOUT DOCTORS.†

**T**HE editor of the *Doctor's Recreation Series* has placed the public under deep obligations to him by the inclusion of Jeaffreson's *Book about Doctors* in that series. The work is written in a chatty and attractive style and contains a great deal of genuine historical value as well as much of gossipy interest, and many an hour may well be taken up in the perusal of its fascinating pages.

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\**International Clinica*. Edited by A. O. J. KELLY, M.D. Fourteenth series. Volume 4. 8vo; pp. 314. With numerous illustrations. Philadelphia. J. B. Lippincott Co.; 1905.

†*A Book About Doctors*. By JOHN CORDY JEAFFRESON. Vol. IV of the *Doctor's Recreation Series*. 8vo; pp. 512, with 4 plates. Akron, Ohio. The Saalfeld Publishing Co., 1905.

# Original Memoirs.

AUTHORS ALONE ARE RESPONSIBLE FOR THE OPINIONS  
EXPRESSED IN THEIR CONTRIBUTIONS.

## THE NAVAL AND MILITARY MEDICAL OFFICER.\*

By THE HONORABLE THEODORE ROOSEVELT.

PRESIDENT OF THE UNITED STATES OF AMERICA AND COMMANDER-IN-CHIEF OF THE AMERICAN ARMY AND NAVY.

NAVAL medical officers represent two professions, for they are members of the great medical body and they are also officers of the navy of the United States and therefore have a double standard of honor up to which to live. I think that all of us laymen, men and women, have a peculiar appreciation of what a doctor means, for I do not suppose there is one of us who does not feel that the family doctor stands in a position of close intimacy, in a position of obligation under which one is happy to rest to an extent that hardly any one else can stand, and those of us—I think most of us—who are fortunate enough to have a family doctor who is a beloved and intimate friend, realize that there can be few closer ties of intimacy and affection in the world.

And while, of course, even the greatest and best doctors cannot assume that very intimate relation with more than a certain number of people, it is to be said, I think, that more than any other man, except a few clergymen, the doctor does commonly assume that relation to many people. While nevertheless it is impossible that that relation shall obtain between a doctor and more than a certain number of people, still with every patient with whom the doctor is thrown at all intimately he has that relation to a greater or less extent. And the effect that the doctor has upon the body of the patient is in a great number of

\* Address to the graduating class of the Naval Medical School, Washington, March 25, 1905.

cases no greater than the effect that he has, upon the patient's mind.

Each one of you here has resting upon him not only a great responsibility for the care of the body of the officer and enlisted man but also a care which ought not to be too consciously felt, for the man's spirit and the morale of the entire ship's company, of the entire body of men with which you are to be thrown, will be sensibly effected by the way in which each of you does his duty.

Just as the great doctor, the man who stands high in his profession in any city, counts as one of the most valuable assets in that city's civic work, so in the navy or the army the effect of having thoroughly well-trained men with a high and sensitive standard of professional honor and professional duty is well-nigh incalculable upon the service itself. I want you now, as you graduate, to feel that on your shoulders rests a great weight of responsibility, that your position is one of high honor and that you hold it under penalty of incurring the severest reprobation if you fail to live up to its requirements.

I am not competent to speak save in the most general terms of your professional duties. I do want, however, to call your attention to one or two features connected with them. In the first place: In connection with the work you do for the service you have certain peculiar advantages in doing work that will be felt for the whole profession. For instance, it will come to your lot to deal peculiarly with certain types of tropical diseases. You will have to deal with them as no ordinary American doctor, no matter how great his experience, will have to deal with them, and you should fit yourselves by most careful study and preparation so that you shall not only be able to grapple with cases as they come up, but in grappling with them to make and record observations upon them that will be of permanent value to your fellows in civil life.

You can there do what no civilian doctor can possibly do. There probably is not a branch of the profession into which, during your career, you will not have to go; no type of disease that you will not have to treat. But there are certain diseases

that you will have to treat that the ordinary man who stays at home, of course, does not, and it is of consequence to the entire medical profession that you should so fit yourself by study, by preparation, that you shall not only be able to deal with those cases, but to deal with them in a way that will be of advantage to your stay-at-home brethren.

There is one other point: Every effort should, of course, be made to provide you with ample means to do your work. Every effort ought to be made to persuade the national legislature to take that view of the situation; to remember that in case of war it is out of the question to improvise a great medical service for the army and navy. The needed increase is more keenly felt in the army than in the navy, because it is always the army that undergoes the greatest expansion. But it is felt in both services.

And when, as is perfectly certain to be the case if a war comes for which we have no greater preparation than at present we have made; if, as is perfectly certain to be the case, there is fever in the camps, if there is trouble among the volunteer forces, it is foolish to the greatest degree for the public men and especially for the public press, to complain and shriek over the people who happen to be in power at that time. Let them shriek, or rather do not let them shriek at all, for shrieking is a sign of hysteria, but let them solemnly think over and repent of the fact that they have not made their representatives provide adequately in advance for the medical system in its personnel and its material and its organization and physical instruments necessary to make that organization into an effective organization, which alone, if prepared in advance, will obviate the trouble which otherwise is certain to come if we have a war.

Let them remember not to blame the people in power when the breakdown comes, but blame themselves, the people of the United States, because they have not had the forethought to take the steps in advance which will prevent that breakdown occurring. Means ought to be provided. That is part of our duty. If we fail in it then it is our responsibility, not yours. But—and this I want to impress with all the strength that in me lies—

upon every medical man, in either the army or the navy, remember always in any time of crisis the chances are that you will have to work with imperfect implements. And you can form a pretty good test of your worth,—if you sit down and say you could have done good work if only you had had the right implements to work with, you will show your unfitness for your position.

Your business then will be to do the very best you can do if you have got nothing in the world but a jackknife to do it with. Keep before your minds all the time that when the crisis occurs it is almost sure to be the case that you will have to do no small part of your work with makeshifts, to do it, as I myself saw it done at Santiago, by the army physicians, roughly and hastily and with but one-fourth or one-fifth of the appliances that they would expect normally to have, and then, as I say, make up your mind that while you have done all you can to get the best material together in advance that you will not put forward the lack of that material, as an excuse for not doing all the work you had to do, upon the imperfect tools. Make it a matter of pride to get the best possible use out of them.

I am sure that all of us outsiders here realize the weight of responsibility resting upon those who now join the great and honorable body of men who in the navy and in the army have by their action upheld not only the standard of honor of the medical profession, but the standard of honor of the officers of the army and the navy of the United States.

I greet you on your entrance into the service. I welcome you as servants of the nation and I wish you every success in the great and honorable calling which you have chosen as yours.



THE MEDICAL CORPS OF THE UNITED STATES  
NAVY,—SOME DETAILS RESPECTING ITS  
PAST AND PRESENT.

BY JAMES NEVINS HYDE, M.D.

CHICAGO, ILL.

LATE PASSED ASSISTANT SURGEON IN THE UNITED STATES NAVY.

THE evolution of the military surgeon resembles, in a measure, that of his colleague in civil life. The operations of the latter began with the excursions of the barber from the brass basin beneath the chin and the razor playing above it; while he who first succored the fallen in battle was the warrior who laid aside spear and shield to devote himself for the moment to the needs of his wounded comrade. According to Homer, the sons of Æsculapius were both fighters and physicians; and it appears that Caesar exempted from taxation the soldiers of his Legions who were capable of dressing the wounds which had not been sucked and otherwise cared for by women. It is a far cry from these early crudities to the time of Henry IV of France, none of whose achievements in the field is worthy a moment's comparison with the splendid fruit of his encouragement of medical science. Macaulay should have added a verse to his familiar lines describing the oriflamme of the Béarnais, in order to award proper meed of praise to the prince who founded the superb St. Louis Hospital in Paris, and who introduced to the world the immortal Paré, brave enough, after centuries had covered up the exploit, to ligate an artery instead of searing it with a hot iron. Paré and his colleagues of that day operated, it is true, with their hats on, their peaked beards projecting above their stiff jerkins; they enjoyed no military rank; they devoted themselves to the care of the chief captains of the army, leaving the soldier in the ranks to fare as best he might; but they were none the less truly great. Baron Larrey, John Hunter, and Guthrie all had illustrated the value of the surgeon on the field

of battle before they transmitted their precious lore of surgical traditions to the physicians who sprang to their honorable task when the Minute Men of Lexington sounded the reveillé for the initial military movement in the country that was to be later the United States of America.

Naturally enough, in this crisis the army received first attention, and its medical staff almost immediately after. As early as May 8th, 1775, the Congress of Massachusetts Bay had appointed a committee to examine applicants for the position of surgeon in the army, and the tests they established in anatomy, physiology, surgery, and medicine were sufficiently severe to exclude six of sixteen candidates. Soon after, four hospitals were provided, one for the care of smallpox patients. Dr. Isaac Foster was made Deputy Director-General. Each regiment was to have one surgeon and two surgeon's mates. These titles in the British service were adopted in the medical departments of both the army and the navy. The word "mate" is unquestionably nautical in origin, a legacy from our maritime forefathers of the island on the other side of the Atlantic, one of whose later poets has written: "There's never a flood goes shoreward but lifts a keel we manned."

The newly created military surgeons, however, were not alone in ministering to the wounded of both sides after the battle of Bunker Hill. Lieutenant Clarke, of the enemy's marines, who wrote exclusively from the British point of view, declared that "all the physicians, surgeons, and apothecaries of Boston attended the wounded officers [of the British army], and gave them every assistance in their power." These volunteers were to furnish the first contingent of medical men for both the army and the navy that were in course of creation.

It was not until the following October that the Continental Congress ordered its first naval armament. The Act of January 6th, 1776, allotted certain surgeons and surgeon's mates to each vessel, the pay of the former ranging from twenty-one and one-third to twenty-five dollars per month, that of the surgeon's mates being two-fifths less. These were doubtless the Spanish milled dollars, the value of which varied in almost every part of



the country. The number of surgeons and surgeon's mates allotted to each vessel was proportioned to the size of her fighting battery. It was not until the year 1821 that the 'surgeon's mate' was succeeded by the "assistant surgeon" of our own day. On September 30th, 1776, the Congress resolved: "That it be recommended to Legislatures of the United States to appoint gentlemen in their respective States skillful in physic and surgery to examine those who offer to serve as surgeon or surgeon's mate in the army and navy; and that no surgeon hereafter receive a commission or warrant in the army or navy who shall not produce a certificate from some one of the examiners so to be appointed, to prove that he is qualified to execute his office." Medical Director Bradley points out that actual examinations for these positions in the naval service were not ordered until the year 1777; and that commissions and warrants, at first from officers of ships, later from the Naval Committee, were for employment chiefly on a single vessel of war, the agreement ceasing when that vessel was placed out of commission or destroyed. The plan was, without doubt, primitive, but it seems to have worked well at the time.

It is well known that the first American man-of-war to hoist the national flag was the *Alfred*, in Philadelphia. Her medical officer, Joseph Harrison, is perhaps entitled to the distinction of being the first on the list of naval surgeons of the United States.

Certainly the name of Ezra Green also should appear among those of the men earliest constituting the medical corps of the United States Navy. Viewed from every point, he was a worthy predecessor of the distinguished officers who have succeeded him. He was born in 1746, was graduated at Harvard College in 1765, and afterward studied medicine with Dr. Sprague, of Malden, and Dr. Fiske, of Newburyport, Mass., securing thus the best medical education then attainable in his part of the country. He engaged in the practice of medicine in Dover, N. H., and acquired an experience which was of value to him in his subsequent military career. He first served on the medical staff of the army, but in October, 1777, was commissioned surgeon of the Continental sloop-of-war *Ranger*, under Captain John Paul Jones. He then left a young wife, to whom he had been married but a few

months, in order to serve his country in discharging the duties of his profession. Surgeon Green accompanied the *Ranger* throughout her memorable cruise, acting both as her medical officer and purser; met the young Marquis of LaFayette and Benjamin Franklin, Minister Plenipotentiary to the French court, when these two famous men visited Captain Paul Jones while his ship



**Ezra Green, M.D., Surgeon of the Continental Sloop-of-War "Ranger,"  
John Paul Jones, Captain.**

lay at anchor in the harbor of Brest; and heard the French fleet in that same harbor thunder the first salute ever offered to the American flag. He cared for the wounded in the memorable fight of the *Ranger* with the *Drake*, when the latter lowered her colors to the Yankee vessel, which the English in that day

insisted was a piratical craft; and with his brother officers ran the risk of being hanged as pirates if they had been captured. Surgeon Green kept a faithful diary of all that occurred during this eventful cruise, probably little dreaming that its pages would ever be spread before other eyes than his own. Nearly one hundred years were to pass before its leaves, yellow with age, were to be reproduced in print and honored with an accompanying sketch of his life by Commodore Preble.

Surgeon Green illustrated in his person the truth of the statement made by Lieutenant Clarke of the British Marines in his "Impartial and Authentic Narrative," to the effect that "their [our] men in general are very robust and larger than the English." Surgeon Green was six feet and three inches in height, and finely proportioned. He had the genial and amiable expression and the classical features of General Washington, for whom, on several occasions, he was mistaken when serving in the army.

Captain Jones' next cruise was on the *Bonne Homme Richard*, which was christened in honor of Benjamin Franklin, a name which ever reminds the student of colonial literature of "Poor Richard's Almanac." His surgeon was Lawrence Brooks, who cared for the wounded in the dreadful carnage which occurred during the fight of his vessel with the *Serapis*, when the latter was captured. Surgeon Brooks received as prize money for his part in the capture \$141.41. By the Act of the Congress appropriating this sum of money, Amos Winship the surgeon of the *Alliance*, and Samuel Guild, surgeon's mate, received respectively \$189.14 and \$79.58. The prize money awarded officers and men in that day was a valuable possibility for those dependant upon the slender pay offered by the Navy.

The thoroughly trained military surgeon of our own day may be tempted to look with something akin to pity upon the equipment and resources of the early representatives of his profession in the services; and yet the latter could and did accomplish much. Of course, they knew nothing of the Czerny-Lembert suture, of the ureteral probe, or of the capability of intra-cranial pressure to dislodge a tumor after its localization and release in two

operations. The entire technique of asepsis was then a sealed book. Yet the estimate given by Surgeon General Senn, after observation of the work done by his colleagues on four continents, was as true in their day as in ours. "The average American surgeon," he writes, "is resourceful, quick and determined in the selection and use of appropriate therapeutic resources, and eminently practical. He is peculiarly well fitted for emergency work; and performs the most difficult task with the simplest means and appliances."

The naval surgeon of the Revolutionary War, when properly provided, carried in his pocket-case lancet, scissors, forceps, razor, scalpels, bistouries, probes (then generally called "sounds"), caustics, and caustic-holders, an emergency outfit not to be despised for a practical and well-trained hand. De Garengot, half a century before, had published a list of instruments employed in surgery, which, with respect to the number of the latter, vies with the catalogues of modern cutlers. Beside the tools enumerated above for the pocket-case, he furnishes illustrations of directors in many sizes and shapes; canulas; specula for the several body-cavities; splints of all sorts; apparatus for lithotomy, for cataract-removal, and for trephining; tourniquets, bougies, and a large variety of lancets, needles, needle-holders, and other instruments. Though often clumsily fashioned, and, with their broad backs and solid blades, lacking the elegance in construction of modern tools, they were unmistakeably serviceable. And yet, even two hundred years before De Garengot's day, Master Jherome, in his quaint black letter volume, illustrated in figures the use of splints (which were made, however, to completely encircle the limb), and of the trephine, which, it must be admitted, in his pages bears a striking resemblance to the mechanism of a quartz-crusher!

Doubtless, the most of the naval surgeons of the Revolutionary period were possessed of the single volume published in Philadelphia in 1776, which contained Van Swieten on the "Diseases Incident to Armies;" Ranby on "Gunshot Wounds;" and Northcote on "Naval Surgery," together with the second edition of Jones' "Practical Remarks." The London translation of Astruc

on "Venereal Disease" had been published in 1737, a truly remarkable work, considering the confusion of knowledge at that period respecting the subject. Laurence Heister's "General System of Surgery" had been published in London in the year 1759. A medical treatise in that day was not wholly obsolete in its twentieth year! Later writers have laughed over one of Heister's plates representing the amputation, or, better, removal of a toe with a mallet and chisel; but his work, none the less, was an exceedingly valuable textbook for the surgeon, embodying, as it did, all that was known and taught respecting minor and capital operations. The use of the tent, of the compress, of the ligature in flax, hemp, and silk, are thoroughly explained by the author. In the art of bandaging he was a master. The purpose of all the instruments named and employed by De Garengot and his contemporaries, together with many others, is amply demonstrated. There is much less to excite ridicule in that part of the text assigned to strictly surgical manoeuvres than in the lines devoted to medicinal management of cases, in which are described the "unguentum Ægyptiacum," the "vulnerary balsam," and the "balsamum Samaritanum." Quinine they had not; cinchona bark they utilized freely, though it was difficult to obtain in ample quantities, and was frequently replaced by infusions of dogwood.

They inoculated for smallpox, a disease with which they were constantly confronted, vaccination not having been introduced before 1798. Surgeon Green himself had been inoculated in this way before entering the service. The itch abounded in both ship and camp. They had no ice for their patients or for themselves. They bled for a large number of ailments, even for gunshot wounds of the chest. They feared to administer water in fevers; and the food for the sick at sea would have roused the gorge of any save the men of a day who were accustomed to what Phillips Brooks has well called "the uncushioned contacts of life." In the way of provisions, they carried salt pork, corned beef, and salt fish, with dried apples, ship-biscuit, rice, molasses, butter, and a few dessicated vegetables. There were no canned or tinned goods of any kind. Of course, they were provided

with rum. The grog-ration of the navy was not abolished until 1862.

This picture, viewed through the perspective of a century, admittedly is tinted with sombre colors and against a dark background. It is, however, somewhat comforting to suppose that the figures drawn in it with the ready pencil of McMaster were those of the doctors of the country-side, rather than of the city-bred men who succeeded in passing the service examinations. Just as silver-plate shone on the generous table of John Hancock, while the rustic ate from boards covered with the coarsest ware, so it may well be believed that there were in the same day physicians who had actually dissected a human body, and who had not limited their experience to "wiring skeletons, pounding drugs in a china mortar, and administering mercury until the lips turned blue and the gums fell away from the teeth." For in the year 1762, Dr. William Shippen, Jr., had given courses of lectures on practical anatomy, which were not interrupted until the War of the Revolution, with an annual number of between thirty and forty students in attendance. Dr. Shippen had been a pupil of John Hunter in London, and was later Director-General of the Army Hospitals. Dr. John Morgan, a Fellow of the Royal Society, who had served as a medical officer in the wars with France, again became a military surgeon on the outbreak of the war. The medical department of King's College, New York, had been organized in 1767, and its opportunities were open to the student of medicine and surgery.

There is some question respecting the dress of the early officers of the navy, both of the line and staff. At the outset, without question, uniforms were few and these often garments suggesting rank merely in one of several particulars. Every student of American history knows that Braddock was defeated by an army of men in their shirt-sleeves. It has been asserted that "no American officer or soldier engaged in action at Bunker Hill wore any uniform," and yet Lieutenant Clarke, of the English marines, positively asserts that he saw a British private rifle the body of Dr. Warren, and that the latter wore a "light-colored coat, with a white satin waistcoat laced with silver, and white

breeches with silver loops." It will be remembered that Dr. Warren at this time was serving not as a surgeon but as an officer of the line.

The uniform of naval officers recommended by the Massachusetts Government in 1776 was a green coat with white facings. Before the Revolutionary War, it is said that the Massachusetts troops in the Louisbourg campaign wore the red coat of the British soldier. When the United States Government first prescribed a uniform for naval officers, it included a blue coat with red facings, a red waistcoat, blue breeches, and yellow buttons. Portraits of officers of the navy at this period invariably represent them with the hair queued and powdered, their faces clean shaven. The order to cut the hair was not promulgated until the beginning of the next century.

The naval surgeon conformed as well as might be to the dress of his brother officers. His breeches were fastened at the knee with a buckle, and his feet usually were encased in shoes, though boots of the sort early called "Hessians" occasionally were worn. The surgeon's patients before the mast wore cheap stockings reaching to the knee, the breeches being sometimes fastened about them, at other times rolled back, and in yet others worn quite loose, giving the effect of the nether garments of some of the modern track athletes of the universities.

The first official list of officers of the Navy and Marine Corps was made out in 1794, by order of General Knox, for transmittal to General Washington, the navy and army being then under one administration, that of the Secretary of War. This list contains only the names of captains, commanders, and lieutenants. In 1800, Charles W. Goldsborough, Chief Clerk of the Navy Department, 1798 to 1813, and afterwards Secretary to the Board of Commissioners of the Navy, a sort of general staff or advisory board, published a register of officers and ships of the navy. He gives the names of thirty-five surgeons and twenty-eight surgeon's mates. Three of these were noted as "without pay."

In 1795, the depredations of the Algerines on American commerce, and the imprisonment of many merchant seamen, forced the Congress to re-establish the navy for the protection of Americans

in the Mediterranean. Its former vessels had been sold and its officers disbanded. The building of four ships of forty-four guns and two of thirty-six guns each was authorized in 1794. In addition to other officers, a surgeon was to be appointed for each ship, with two surgeon's mates for the larger and one for the smaller. The pay and subsistence were fixed for the surgeons at \$50 per month and two rations daily; for the surgeon's mates at \$30 per month and the same number of rations. The ration specified for each day, that of Sunday being somewhat more ample, was one pound of bread, one and one-half pounds of beef, one-half pint of rice, and one-half pint of distilled spirits or one quart of beer daily for each man. Molasses or cheese was added on some days and pudding on others. On Friday there was an allowance of salt fish and butter or oil.

At a later date the *Ganges* was fitting out under the command of Captain Thomas Tingey, who appears to have himself appointed its officers. In a letter dated December 9th, 1798, he writes to Dr. John Rush, Surgeon of the *Ganges*: "Having received information that several of the crew are sick and without medical aid, it is therefore highly incumbent on you that you repair on board immediately; and I most seriously request that you lose no time in getting on board. The ship will weigh in less than an hour." Captain Tingey, "off St. Kitt's, July 26th, 1799," informs the Secretary that "Dr. Rush, of the *Ganges*, intending to relinquish his profession on his appointment to a lieutenancy, has requested to return home," and, "as Mr. Hughes appears a very capable man, I have assented thereto." Mr. Hughes was appointed Surgeon's Mate upon the sailing of the *Ganges* from the United States.

In the regulations for the government of the Navy, 1798, it is prescribed that "a convenient place be set apart for sick or hurt men, to which they are to be removed with their hammocks and bedding when the surgeon advise shall the same, and some of the crew appointed to attend them."

The names of Isaac Henry, Surgeon, and John Murdaugh, Surgeon's Mate, appear in the list of names of officers of the *Constellation* in her famous fights of 1799 and 1800, and are among those to be "properly noticed by the President."



Congress passed a Pension Act in 1795. The list of pensioners in the Navy Establishment for 1802 contains the name of only one medical officer, Surgeon's Mate Edward Field, who entered the service from Rhode Island in 1799.

With the Peace Establishment of the Navy, November 17th, 1800, the number of surgeons and surgeon's mates was reduced to seventeen and twenty-seven respectively. The ships retained in the navy were required to be constantly employed, and the limited number of officers was kept correspondingly active.

The uniform for surgeons and surgeon's mates given in the Register for 1802 was, for full dress, as follows: Surgeons—coat of blue cloth, long lapel and lining of same, nine navy buttons, with gold frogs on lapels, standing collar same as coat, and two frogs on each side of the collar. Three navy buttons below the pockets, three gold frogs on pocket flaps, and same number of navy buttons to the cuffs with gold frogs. Vest and breeches white, with navy buttons. Cocked hat. Surgeon's mate to be the same as the surgeon, except the button holes for the nine buttons were to be "worked with gold thread; two buttons on collar and a slip of gold lace; slashed sleeves with three buttons and three buttons on pockets. Vest and breeches white and plain."

Dr. Louis Herman was surgeon's mate of the *Chesapeake* when that vessel was the flagship of Commodore R. V. Morris, sailing for the Mediterranean April 27th, 1802. He was transferred later, as its surgeon, to the *Enterprise* and was one of the officers volunteering for the attempt made by Decatur to cut out and burn the *Philadelphia*. Decatur wished to place his surgeon on the brig, which was designed to remain outside of the harbor and out of danger; but Herman, while submitting himself to the orders of his superior officer, begged permission to accompany the expedition, where his professional services would almost certainly be required and where, he believed, he might save valuable lives. Herman, accordingly, was placed in full command of the ketch, with a crew of seven men, and instructed to give no quarter if boarded by the Turks. These orders were faithfully executed by the gallant surgeon in com-

mand, who was later commended by Decatur in his official report for his honorable share in the issue.

Surgeon Thomas Harris, in his "Life of Commodore Bainbridge," gives the names of John Ridgely, surgeon, Jonathan Cowdery and Nicholas Harwood, mates, as among the officers captured off the coast of Tripoli in the United States frigate *Philadelphia*, November 1st, 1803, and subsequently imprisoned. Dr. Ridgely, upon his release from captivity, resigned and became a practitioner in Annapolis. The other two died in the service as surgeons. Dr. Cowdery was the senior surgeon in the service in 1837 and stationed at Norfolk. Dr. Harwood died in 1812.

The Secretary of the Navy, Robert Smith, in 1807 addressed the Congress with respect to the memorial of surgeons in the navy, stating that "it will be perceived that surgeons and surgeon's mates receive less for their services than the usual profits of private service of physicians on shore."

During the War of 1812, which was fought largely at sea, the previous establishment of completely organized medical schools, and the opportunities thus afforded for medical teaching, had resulted in an education for the naval surgeon surpassing that which had been at his command prior to the Revolutionary period. Intercourse between the mother country and the newly founded republic had placed the surgeons of the latter on a par with those serving in the British Navy. The works of Cheselden, Bell, Monro, and especially of John Hunter, were now within reach of the men who cared for the wounded on the *Essex* and the *Niagara*. It will be remembered that when the *Constitution* had made a floating wreck of the *Guerrière*, Lieutenant Read, who was sent to receive the surrender of Captain Dacres, bore a message from Commodore Hull, who presented his compliments and offered the enemy the services of a surgeon or surgeon's mate. Dacres responded that he supposed the *Constitution* had business enough on board for all her own medical officers. "Oh, no," was the response, "we had only seven wounded and they were dressed half an hour ago!" At that moment the *Guerrière* had between decks fifty-six wounded, one-fourth of her crew.

When Lawrence fell on the deck of the *Chesapeake* and was

carried below, Surgeon Richard C. Edgar and Surgeon's Mate John Dix cared for the fallen hero, who asked Dr. Edgar to go on deck and tell the officer to "fight the ship until she sinks." This incident gave origin to the historical message, "Don't give up the ship."

Three surgeons are mentioned as of Perry's squadron in the battle of Lake Erie. One of these, Dr. Usher Parsons, who remained in the navy until 1823, made an address at the unveiling of the Perry statue at Cleveland, Ohio, September 10th, 1860, in which he described how the wounded were brought below on the *Lawrence* faster than they could be cared for, and of the scene in the surgeon's room, where lay the lifeless bodies of Midshipmen Laub and Pohig, both killed in the cockpit after their wounds had been dressed. "Laub had hardly left my hands, when a cannon ball struck him in the side, dashing him against the wall and cutting his body nearly in twain. . . . Whilst I was

intent upon stopping the flow of blood [of Claxton], news came from deck reporting that the Commodore had gone to the *Niagara* and that our ship was hauling down her colors. . . . In a few minutes a cry came from the deck, "The ship has struck!" I leaped upon deck, calling out, "What ship has struck?" and saw the *Detroit's* flag and the *Queen Charlotte's* flag coming down. It was enough! . . . I rushed back to the wounded shouting "Victory! Victory!" On the same occasion, Dr. Nathaniel Eastman, of Seville, Ohio, described his assisting in the care of the wounded taken to the Marine Hospital at Erie directly after the action. This gentleman afterwards received an appointment in the navy as acting surgeon's mate and served on the captured ships *Detroit* and *Queen Charlotte*.

During the memorable cruise of Commodore David Porter on the *Essex* in 1812, the medical officers of the ship were Surgeon Robert Miller and Surgeon's Mates Richard K. Hoffman and Alexander M. Montgomery. The names of both are signed to Porter's Declaration of November 19th, 1813, as the result of which we gained possession of our first islands in the Pacific.

In the list of names especially honored for service in connection with the Navy Medical Corps, including those of Burton,

Ruschenberger, Horner, Wilson, and Gihon, none is perhaps more distinguished than that of Passed Assistant Surgeon Elisha Kent Kane, the Arctic explorer. It is not generally known, however, that when serving as a medical officer during the Mexican War, he was entrusted by the President of the United States with a special message to General Scott, of the army. In making his way to the Mexican capital, Kane was attacked by the enemy, wounded, and lay ill for many subsequent weeks. On his return to his home, the citizens of Philadelphia presented him with a sword in commemoration of his gallantry and his treatment of the wounded, friend and foe, when himself suffering from personal injury. After his death, the Congress ordered a medal struck in his honor. Surgeon C. D. Maxwell, of the navy, is another member of his corps distinguished for his service to the wounded in the advance with the skirmish line during the Mexican War. DuPont says of him that he was "every inch a surgeon and medical man, but serving in many ways." Admiral Pearson appointed him Acting Consul at Panama, on the death of the United States Consul in that port, a post which he filled as an officer of the navy until duly relieved, with great credit to himself and to the satisfaction of the Government.

The "loblolly-boy" of the old-time navy was a ship-surgeon's assistant, serving as a "bayman" or ship's nurse, though often employed in compounding medicine and doing other tasks under the direction of his chief. The origin of the title, whether from the "spoon-meat" or water-gruel of the ship's ration, or from the loutish or silly persons sometimes so designated, is difficult to determine. The name first appears in some old naval manuscripts relating to the War of 1812, and is recognized in a copy of the "Regulations" published in 1814, the year in which appeared also the first Official Register. The "loblolly-boy" was to serve the surgeon and the surgeon's mate. The name is to be found in the writings of both Boswell and Smollett.

During the Civil War, which was largely fought by the army and on land, the naval surgeon was chiefly occupied with the illness occurring in vessels of the great blockading squadrons, where, with such help as he might be able to derive from the ponderous

tomes of LaRoche and other authors, he struggled with yellow fever, and with the disorders incident to the crowding together in enforced inactivity of large numbers of men. In the naval actions at New Orleans, Mobile, off the coast of France when the *Alabama* was sunk by the *Kearsarge*, in the naval attack on Fort Fisher, and elsewhere, the surgeons of the navy discharged their duties with unexampled bravery and with the skill of their colleagues on shore. Many of them had been pupils of Pancoast, Agnew, Gross, Parker, Bigelow, VanBuren, and Hamilton. They had in their possession the works of the great masters of clinical and military surgery of that day. Carbolic acid, though discovered some twenty-five years before, had only been demonstrated as of practical value at the close of the conflict, about the time when the clinical thermometer was coming into common use. Bromine was successfully employed in cases of hospital gangrene. Labarraque's solution was constantly employed in the dressing of wounds. Scrupulous cleanliness was practiced with respect to all operations and instruments. It is a fact known to every officer and sailor of the navy that since the first of the kind was launched, the American man-of-war has been in all its appointments and crew cleaner and sweeter than any craft afloat. The mortality from wounds and from disease in the navy during the Civil War bears comparison with that of our later fleets. The West Gulf Squadron alone passed through an epidemic of yellow fever, from 1863 to 1864, with a mortality of somewhat less than twelve per cent.

Admiral Dahlgren did full justice, in his report dated November 17th, 1863, to the gallant conduct of the medical officer of the *Lehigh*, Dr. W. Longshaw, in saving one of the vessels of the fleet; but it was Admiral Selfridge who praised the higher heroism of the same officer when he was shot dead, January 1st, 1865, while attending to a wounded marine. In a similar way, Assistant Surgeon J. H. Gottwald was killed, January 1st, 1863, when the Confederate ironclads came out of Charleston harbor to attack the vessels of the United States. Gottwald was killed by a shell entering the port side of the *Keystone State*, while he was ministering to the wounded.

The Spanish-American War, lately concluded, was chiefly naval, though waged for too short a period of time to severely test the surgeons of our fleets. It is interesting, however, to note that in two months of this struggle less than fifty men were killed, and no death occurred from any wound if the damage inflicted was not so grave as to ensure a fatal result in a few hours after its infliction. The war with Spain is illuminated by a brilliant advance in the methods of the care of the wounded in naval actions, designed by Surgeon General Van Reypen and minutely described by Medical Director Marmion. The naval ambulance ship *Solace* was secured for a transport to accompany battleships and cruisers, not as a hospital ship, but, as its name imports, to serve as a transport for the wounded. It was a steam vessel, steel-built, provided with aseptic furniture, sterilizers, hoists for moving cots in which reclined the wounded; beds for one hundred and eighty men; an emergency-ward with one hundred portable cots; a tank holding 137,000 gallons of fresh water, steam laundry, and ice-machine. It was steam-heated, electric-lighted, and capable of a speed of sixteen knots an hour. It is not a matter of surprise that the Japanese have followed this step by fitting up their ambulance ships, the *Hakuai-Maru* and the *Kosai-Maru*, on much the same plan. Hereafter, in naval wars, none can doubt that the ambulance-cruiser and the hospital-ship will be essential parts of a properly organized fleet; and that the transport of the wounded to the old-time "cockpit" will be exchanged for a removal to a vessel flying the Red Cross flag, fitted with every modern appliance for life-saving and the comfort of the stricken.

Medical Director Bradley, in his valuable paper already cited, does full justice to the memory of some of the men of the medical corps of the navy who are on its roll of honor, including the names of Passed Assistant Surgeon Ambler, of the ill-fated *Jeannette*; of Assistant Surgeon John Blair Gibbs, killed in action at Guantanamo, while serving with the Marine Battalion; and Assistant Surgeon Lippitt, who was wounded during the siege of the legations at Pekin.

The young man who enters the medical corps of the United

States Navy at the present day enjoys advantages never offered before, and his prospects for a future career were never as promising. The preliminary examination before a board of medical officers of the navy as to his physical, mental, and professional qualifications is both unprejudiced and impartial. Political support and personal influence do not avail in the slightest measure. The successful candidate, after receiving his commission, is ordered to what is officially known in the navy as "shore duty;" and as soon thereafter as the Naval Medical School opens (on the 1st of October of each year) he receives orders to attend the curriculum of this institution for six months. The course is to be extended to seven months in the year 1905. This new procedure, looking to the better fitting of the naval surgeon for his subsequent duty, is of the highest value; and the possibilities of its future usefulness to every branch of the service can scarcely be over-estimated. Through the courtesy of Medical Director Marmion, the writer has recently enjoyed the privilege of inspecting this school in all its departments. The building is well situated at the corner of 23d and E Streets, N. W., in the city of Washington, on high ground, with many acres enclosed, overlooking the Potomac River. The new Naval Hospital is in course of erection in the same area. The building was formerly used as the Naval Museum of Hygiene, a part of the space only being at present devoted to exhibition of apparatus illustrating the original purposes of the Museum. The School is amply provided with lecture-rooms, bacteriological and chemical laboratories, lockers for members of the class, microscopes, and all requisite apparatus.

There are few graduates of our best medical schools who are afforded an opportunity equal to that of the newly commissioned assistant surgeons of the navy for rounding out their education as physicians and surgeons, for assuredly military medical officers must be qualified in all departments of medicine. The schedule of work laid out for the current year is suggestively comprehensive. The morning hours are devoted to physical exercise, hospital corps drill, and studies in signals, tactics, etc. The value of these exercises to the student who has just com-

pleted a work in which for the most part he has been confined in hospitals and lecture-rooms can readily be appreciated. Already the improved physical condition of the young men taking this course has impressed itself upon the officers with whom they have been later associated in service. Other hours of the day are devoted to work in the laboratories and to lectures on the duties of medical officers of the navy, on military diseases and military surgery, on naval law, on ophthalmology, and on diseases of the tropics.

Respecting the subject last named, too much stress can scarcely be laid upon the special need of the naval surgeon to investigate the maladies of hot climates. The contributions to this field made by our colleagues in the military service of Great Britain are sufficient to stimulate the zeal of the American naval surgeon to a keen and honorable rivalry. In view of the number of what might be termed the new Colonial Dependencies of the United States, it need scarcely be added that the responsibility for performing this task is only equalled by its importance. Among the graver diseases more or less prevalent in these lands may be named lepra, yellow fever, acrodynia, mycetoma, and pellagra. Of those with less formidable consequences may be enumerated phagedena tropica, the more recently recognized tropical forms of tinea, including tinea imbricata, and verruga peruviana. The labors of Sir Patrick Manson alone in this fertile field should stimulate the interest and ambition of every American surgeon in charge of the crew of a man-of-war in a tropical station.

On completion of the curriculum of the naval Medical School, the young assistant surgeon receives a diploma and joins the official company of the three hundred and seventy-five men composing the medical staff of the navy, one hundred and fifty-five of whom are on the retired list. His rank, beginning with that of a Lieutenant of the junior grade, may be steadily advanced as he does faithful and efficient service. His rank is real and no longer "relative", and his labors henceforth are in the direction of the care of the thirty-five thousand men constituting the naval force of the United States, whether in one of the



score or more of hospitals and shore stations under the control and management of the Navy Department, or on board of one of its fleet of war-vessels in actual commission. In times of peace, questions relating to hygiene, to the management of epidemics, and to the ill-health of the enlisted men will occupy his attention.

Since the creation of the American Navy, the United States has fought half a dozen important wars, of which three have been preeminently struggles the fate of which was settled at sea. None can doubt that if another war shall ever be fought by the people of this country, it will be essentially a contest in which the navy must play the more important part. The duties of the naval surgeon in times of peace must hereafter greatly differ from those devolving upon him during such intervals as have hitherto elapsed between the battles of this nation, whether by land or sea. The problems presented to him in the care of the wounded in action were never so imperative and grave. They differ widely and wholly from those with which the army surgeon is confronted. The men on a modern man-of-war are no longer in the position of Lord Nelson and his brave men on the *Victory*, who, when they were stricken down, were readily transported to the cockpit. The dictum of that day was: "The surgeon is placed in the hold, where he should be in no danger of shot; for there cannot be a greater disheartening of the company than in his miscarrying, whereby they will be deprived of all help for hurt and wounded men."

The men behind the modern guns are often imprisoned in steel-walled cells, from which transport in action is attended with not only enormous difficulty, but with a high grade of danger to both the wounded and the hospital corps. The rapidity with which modern pieces of ordnance can be discharged, the automatic and machine-like regularity of their volleys, the precision attained in the matter of range and impact of missiles, and, most important of all, the dreadful carnage which the enormous twelve-inch shot and shell are capable of producing—these all present serious problems in connection with the number of men who may be wounded by a single projectile. No one can read the tale of the mangling of human bodies produced on a ship of the

Chinese Navy by a single shell of the enemy during its recent war with Japan, and not recognize within him an intense longing to save American sailors from any such wholesale destruction. It is generally believed in naval circles that a single projectile from an American war-vessel killed more than one hundred Spanish sailors on the *Colon* when that vessel was fleeing from Santiago Harbor. How to precipitate these calamities is the work of the marine architect and the officer of ordnance; how to preserve life after the overwhelming devastation which one of these missiles is capable of producing, is the part of the naval surgeon.

The Honorable Henry Cabot Lodge, of Massachusetts, in a recent debate in the United States Senate, closed his fine address by reminding his colleagues that the navy stood for peace. As the great battleships of the Republic, in a day when the gates of the temple of Janus are closed, are forged (who shall say at what mighty cost and with what incomparable toil and splendid skill!) that they may be in readiness if the doors of that temple shall ever swing open, so the naval surgeon, in the hour when there is no hurtling of shells in the air, must make ready for the worst that can be inflicted in time of war upon the brave men whom the Government confides to his professional charge.

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## TRANSPORT OF DISABLED RUSSIANS IN MANCHURIA

THE Manchurian facilities for transporting the wounded, says Hohlbeck, are exceedingly deficient, although the vehicles supplied by the Red Cross Society are excellent on the unfortunately very rare occasions when they can be obtained. They consist of carts such as are used in Finland and a large number have been applied for, which it is hoped will abate the suffering due to the present shortage in transportation. The native carts are so clumsy that, in connection with their being so short as to forbid carriage of a recumbent patient, they are a source of discomfort rather than of assistance to the disabled.

TREATMENT OF UPWARD DISLOCATION OF THE  
ACROMIAL END OF THE CLAVICLE IN  
THE TROPICS.

By MAJOR P. R. EGAN,  
MEDICAL DEPARTMENT, U.S. ARMY.

**I** WAS called April 3d last to see a patient, reported to have dislocated his right shoulder. He had been returning from a neighboring camp, some three miles away, in a native 'fleche,' a small light cart for the little ponies of the Philippines.



"Fleche."

These are made without seats or back-rest of any kind, and with only a small railing round the edge.

Passengers usually sit Turkish fashion in the center of the body of the cart and hold on by the railing, or, close to the edges and let the legs hang over the sides. The patient was riding in this latter position, when the pony shied and he lost his balance; grasping to save himself, he missed the edge and caught the wheel. He was thus thrown forward on his right shoulder, while the wheel of the fleche passed over his thighs which, however, remained uninjured.

I found the acromial end of the clavicle sticking up very prominently over the shoulder joint, but had no difficulty in discovering that the head of the humerus and the spine of the scapula were in their proper place. The acromial end of the clavicle had been dislocated upward. Neither myself nor my assistant had ever seen such an accident. The Public Health and Marine Hospital Surgeon on duty at this point, had seen one in the clinic of Prof. Wyeth of New York; while the president of the Provincial Board of Health is reported to have seen two.

Mr. Makins, in the International Text Book, gives a list of eight hundred and twelve dislocations treated at St. Thomas' Hospital. Thirty-four of these, 4.19 per cent., were of the clavicle—twenty-one, or 2.58 per cent., at the sternal end, and thirteen, or 1.6 per cent., at the acromial end. These latter he classifies as scapular dislocations. He also states that in four hundred dislocations cited by Krönlein, six, or 1.5 per cent., were at the sternal end, and eleven, or 2.7 per cent., at the acromial end; and the German surgeon adds that many writers consider dislocations of the acromial end twice as frequent as those at the sternal end. My personal experience, as far as it goes, rather coincides with the St. Thomas' statistics, as many years ago, in my early professional experiences, I met with two cases of dislocation at the sternal extremity.

The prognosis and treatment of this condition I found to be as dubious as the statistics. Mr. Makins stated that "entire removal of the deformity is rarely attained. \* \* \* But, even if the deformity cannot be permanently reduced, the restoration of function is almost complete, free abduction being the only movement endangered. He recommends the application of a plaster of Paris case to support the arm and keep the scapula

at rest. Or a pad or molded plate of gutta-percha, over the injury, fixed by stout strapping over it and round the forearm just beyond the olecranon, the elbow being brought well forward."

Dr. Mudd, in *Park's Surgery by American Authors*, says, "The bone should be frequently inspected, for the inclination of the articular surfaces favors redisplacement, and treatment must be continued for several weeks. The arm should be used with caution for two months." He recommends Stimson's plan of treatment, or Moore's dressing for fractured clavicle.

The *American Text Book of Surgery* says; "Retention of the bone in place after reduction has presented so many difficul-



**Belt Retentive Apparatus for  
Fractured Clavicle.**

ties that some have taught that it is not worth while to attempt it, especially since persistence of the dislocation ordinarily causes no loss of function; but the method recommended by Stimson is so simple and efficient that it should always be tried. A long strip of adhesive plaster, three inches wide, is placed with its center under the point of the flexed elbow and its ends carried up in front and behind the arm, crossed over the end of the clavicle and secured to the front and back of the chest respectively, while the bone is held in place by pressure on the clavicle and elbow. Recurrence can be easily detected through the plaster, by the fingers, or the eye. For additional security, the forearm should be supported in a sling and the arm bound to the chest."

After consulting these authors, I concluded, if possible, to use the Stimson dressing, with which I considered the stout strapping of Mr. Makins as synonymous. But I had had repeated failures with mustard-, fly-, and all kinds of plasters in the tropics, and I feared that adhesive plaster would, as usual, fail to adhere. My suspicions I found only too true. The best rubber plaster at my disposal would not adhere sufficiently to hold the clavicle in place by means of a pad. While casting about for

something to take its place. I noticed the patient's belt which, it seemed to me would be just the thing. That of the patient however, was unsuited, but the belt of one of the members of the Hospital Corps fitted exactly. Applied over a bandage holding a pad in the axilla, the arm bound to the side and the forearm in flexed position, I found that any amount of pressure could be made on the dislocated end of the clavicle by a suitable pad on which the buckle of the strap rested.

My assistant, Contract Surgeon C. A. Warwick, U.S.A., carried out the treatment, and to his untiring care and patience, with one of those cases so aptly described by the old lady as suffering from "nervus agilitas," is principally due the excellent result obtained. He further broadened the part of the strap that passed round the elbow so that it could be padded, as the patient complained that the strap protected by a bandage was crucifying him. I am also indebted to his kindness for a photograph of the modified belt, and another showing it in use. This dressing is very simple. The belt can, if necessary, be made enlarged for padding, by any saddler, or what I would prefer, but was unable to obtain out here, would be a three inch belt of stout webbing. A pad formed by a rolled gauze bandage is placed over the dislocated bone and this retained in position by the belt passing over it and under the elbow. A bandage secures the arm to the side, either with or without a pad in the axilla, depending on the difficulty of holding the bone in place, and finally the forearm is placed in a sling.



**Belt Retentive Apparatus for  
Fractured Clavicle in  
Operation.**

The results obtained after six weeks' application of the dressing and two months' light use of the arm were such that no difference could be discovered between the shoulders, either by the naked eye or the x-ray and that the patient now indulges in baseball.

## THE DANGERS OF UNRESTRICTED TRAVELLING OF CONSUMPTIVES.

By JOHN WILLIAM TRASK, M. D.

ASSISTANT SURGEON IN THE PUBLIC HEALTH AND MARINE HOSPITAL SERVICE.

**A**S Sanitarians, our greatest and first duty to society is the prevention of disease. Our best energies are called upon first to keep from our shores diseases which we do not already possess, and secondly to extinguish and cause to cease to exist as many as possible of those by which we are now afflicted. The former we are doing. Our National Quarantine has been very successful in the past and is constantly becoming more efficient as its scope increases. To combat disease within our borders is not so simple. Each separate state has charge of its own disease, thus producing great variation in the Health Laws throughout the country, in spite of the fact that the nation suffers because of disease in any of its states by reason of the intimate and almost unrestricted intercourse between its various parts.

As practitioners of preventive medicine our greatest problem to-day is tuberculosis. The profession the world over has been working to find a cure. We believe we understand the etiology and pathology of this widespread and devastating disease which robs us of as many of our young men and women as would a continuous war. The masses are being educated regarding it. The newspapers and magazines are doing their share by publishing many popular articles on the subject. The time will soon be here, if it is not already, for by delay thousands of lives are being sacrificed, when the disease can be grappled with, and so very greatly diminished that, instead of being one of the most common, it will become one of the rarest of diseases.

If we believe as we do that the Tubercle Bacillus is the necessary factor and cause of the disease, then our course is



clear, our path is straight and narrow. To prevent the spread of the malady and the infection of new cases, we must prevent the spread and dissemination of the bacilli which are the cause. Only in this way can the disease be attacked effectually. We have been doing this in a more or less halfhearted manner, perhaps as well as we could considering the status of public opinion, and the opposition that health boards have met in various states in their attempt to even secure notification of cases. Were it a disease running a short course and rapidly fatal, we could secure more readily the co-operation of the people at large. But, because of the long duration and lingering nature of the disease which makes each case a source of danger and distributor of the *causa morbi* over so much longer a period, we need this co-operation so much the more. The disease must be combatted with the same energy, zeal and thoroughness employed against the acute contagious diseases, although of course the *modus operandi* will be somewhat different.

We know that the Tubercle Bacillus is the cause of Tuberculosis; and that it is present in large numbers in the sputum of the vast majority of those suffering from the pulmonary type; we also know that by far the greater number of consumptives expectorate broadcast,—some because of ignorance, some because of indifference. We know that Tubercle Bacilli are very resistant and withstand the effects of heat, cold and dryness to a marked degree. Then it is time the profession showed its sincere belief in these platitudes by concerted and vigorous action.

Whenever you have occasion to ship a body of one dead of Tuberculosis or some of the other infectious diseases from one place to another, you will find, if you are not already informed of the fact, that health boards require about as follows; which is prescribed by the Illinois Board of Health,—“that the bodies be prepared for shipment by arterial and cavity injection with an approved disinfecting fluid, washing the exterior of the body with the same and enveloping the entire body with a layer of cotton not less than one inch thick and all wrapped in a sheet securely fastened, and incased in an air tight metallic coffin or casket, or air tight metal lined box provided that this shall apply

only to bodies which can reach their destination within thirty hours from the time of death. In all other cases such bodies shall be prepared by a licensed embalmer in which case the air tight sealing and bandaging with cotton may be dispensed with."

All this is certainly correct, proper, and as it should be. But we are bound to pause and wonder on the inconsistency of many things mundane when we appreciate that this same body when living,—referring especially to Tuberculous patients,—undoubtedly traversed the same route, perhaps in the same train, as it is now taking on its return, but with this difference, that when the afflicted one came, he was expectorating freely, and in many cases broadcast, expectorating large masses of bacilli laden sputum into the car cuspidors and out of the windows and smaller ones perhaps on the floor, and spraying everything before him. He returns in a baggage car, but he came in a Pullman. He used the dining car and perhaps the same knives, forks, spoons, cups, and glasses that you or some one else used at the next meal. They were washed between times of course, but then there are many degrees of thoroughness even in the washing of dishes. He also used the drinking glass or cup at the water tank which many others, unaware of the risks they were running, used after him.

There are not as many consumptives travelling about in the East as there are in the Western states and territories. If there were, proper legislation would have been demanded and enacted before this. It can be stated that every train running through the southwest carries one consumptive and most of them several. A Pullman car in the southwest without a consumptive aboard is the exception. The writer has in mind one which travelled for over 1000 miles with seven passengers, four of whom were consumptives in advanced stages of the disease. A few of them have been taught the dangers to others from their sputum and take care of it properly, that is, carry a cup, properly destroy the sputum when the cup is filled and do their best to prevent spraying, but by far the majority have not been taught these precautions and many of those that have are unwilling to go to the

small amount of pains and trouble necessary to protect their fellow travellers.

Carrying this number of unrestricted tubercle bacilli distributors, the trains are bound to become badly infected, smoking cars, chair cars, dining cars and Pullmans. The sleeping cars and smokers are perhaps the worst, if there is any difference in the degree of contamination. In the sleepers the patient coughs, expectorates and sprays within the narrow limits of his berth. True, the bed linen is changed daily, but not so the woolen blankets. In the smoking cars infection is apt to be great for the simple reason that those travelling in it are always more careless in regard to expectoration there than they are elsewhere. But all the cars are bad due to the very nature of their make-up. What could be worse than the plush upholstery and the immovable low seats. Plush will catch and retain flying particles of sputum until they dry better than almost anything else. All that is needed then to make bad matters worse is the periodical stirring up of the dust with the feather duster by the porter under the impression that he is removing it. Then, too, the low seats screwed to the floor render it well nigh impossible to properly cleanse beneath them when the car is cleaned between trips. Also the low cuspidors of small capacity placed between the seats on the floor where none but the user can see the result induces many men to spit at rather than into them.

It is impossible under present conditions to know just how many consumptives there are in a given community or population. This is all the more true because by far the majority of cases are not diagnosed until they have reached a comparatively advanced stage. But oftentimes the early cases are just as dangerous to the community, as their sputa frequently contain large numbers of bacilli. We do know that there is at the very least one consumptive to every five hundred of population. This would give a city of 500,000, one thousand consumptives. But a very small percentage of these have any means of caring for their sputum. Many street car lines have signs placed prominently, cautioning passengers not to expectorate in the cars. Some cities make it a criminal offence to expectorate upon the sidewalks, but it is not

in these places where there is free access of fresh air and where the organisms which are found to be in the dust are comparatively few and well diluted that the chief danger lies. It is in the house, the store, the shop, the factory, the office, the steamer stateroom and railroad coach that new cases develop.

In houses which are owned by the occupants the danger is mainly to the one family. All men in private practice know how utterly careless many consumptives, especially among the more ignorant classes, are at home. You have seen them load pocket handkerchiefs with bacilli laden sputum, and expectorate small particles on carpets and rugs; you have seen them sneeze and cough, spraying everything before them; you have seen them all drink out of a common drinking glass. Or perhaps you personally have not seen these things and do not appreciate that they exist, or perhaps you say that these things occur only among the ignorant. But these things do exist and are found in all classes of society. The writer has seen consumptive mothers and fathers too, take a spoon which they had been using, a spoon which had been in their own mouths and feed their child from it. The use of a single drinking glass by the entire family is a common occurrence.

Illustrating the dangers to one's immediate family, and you all undoubtedly know of similar cases, I have in mind one of six members, the father, mother, three sons and a daughter. All were in apparently good health, when one son contracted pulmonary tuberculosis. Inside of five years every member of the family except the father had died of the disease. This is the danger to the immediate family. But when it occurs among people who live in rented houses the danger is increased manifold. The diseased family infects one house, apartment or flat and moves to another to infect it in turn. Other families move into those the former occupants have infected and left. Thus the infection of houses and apartments goes on and the exposure of successive families increases.

In stores you will very often find a consumptive clerk, stenographer, or bookkeeper who expectorates everything but the larger masses of sputum on the floor. One clerk will in this way

infect a large area of floor space. The sputum when dried and swept in the usual way will scatter in dust the dried particles over a considerable area.

In shops and factories matters are much worse, for here expectorating on the floor is more common and the buildings are usually kept much less clean and in many a thorough cleaning is unknown. In many offices, too, the danger is great; especially is this true of some newspaper offices where many of the staff often work in a limited space, and thorough cleansings are sometimes rare.

In travelling by water, a careless consumptive in two or three days occupation of a stateroom can and oftentimes does so infect everything around him, especially the carpets and rugs, by voluntarily expectorating upon the floor, that it is a constant menace to future occupants. Much the same conditions exist in steamer cabins as in railroad coaches and the same remarks apply to both.

To and from the West and Southwest consumptives are constantly travelling. The railroad coaches as previously stated are bound to be badly infected. The majority of those going West have but moderate means and by them the dining and waiting rooms in depots are made the receptacles of sputa. Especially is this so of the dirty waiting rooms and, "hurry-up", lunch counters found at small stations.

Throughout New Mexico, Colorado and parts of Texas a very considerable proportion of the population of the towns consists of consumptives. You meet them on the streets, expectorating broadcast. You meet them working in shops and stores, living in boarding houses and hotels. You meet them anywhere and everywhere. That the buildings in these places especially the hotels, boarding houses, shops and stores should have remained uninfected is impossible. That the well portion of the population has not been decimated may be due to the dry climate and abundant sunshine. But be that as it may, new cases have been and are developing in New Mexico, Colorado, and Utah, as has been learned from their health officers in the two states and from personal knowledge in the territory. The people are beginning to find that the presence of careless consumptives in their

midst is a source of personal danger to the community. That the natural conditions alone in this land of sunshine will not prevent the spread of the disease is thoroughly demonstrated on the Indian reservations where 75% of the Indians die of Tuberculosis.

#### REMEDIES.

The remedy for the existing conditions of unrestricted dissemination of the cause of Tuberculosis lies in the co-operation of the medical profession and the people at large in a campaign of many years duration. Were a foreign enemy to slay as many of our citizens as does this disease, the nation would be up in arms and devote hundreds of millions of dollars, if necessary, to put an end to it. Nevertheless, we have in our midst an enemy more dangerous, and costly to the community than would be an actual war. The disease being widespread and its cause invisible to the eye, we are individually in a measure unable to combat it as we could a visible foe. It attacks those dear to us and our first warning is the finding of the disease already established. The very prevalent idea that only certain predisposed individuals are liable to infection is erroneous. It may be true that some are more easily infected than others. Also that conditions of ill health and lessened resistance due to acute infections, overwork and improper modes of life make one more susceptible to the disease, but it is also apparently true that it is simply a question of dosage and that the most robust will succumb provided a sufficient number of bacilli gain entrance into the body.

Correct diagnosis on the part of the attending physician is the first essential. It must be made early. Most any layman can pick out the disease in its later stages. But if we will give our patient a chance of recovery; if we will protect his family, friends and associates, then we must know what it is we are treating and we must know it before the lesions are so far advanced that the patient has little or no hope of getting well, and those with whom he has come into contact have also developed the disease. Diagnoses are in most cases made late. In spite of the frequency of the disease and the fact that we are continually coming into contact with it, it is perhaps less often diagnosed than any other

common malady.. Physicians seem to shun the diagnosis and fail or fear to name it. It is called pleurisy, weak throat, weak lung, most anything but the proper thing. It is astounding the frequency with which we run across a patient who gives a history of cough, expectoration, pleuritic pains and perhaps night sweats or hemoptysis with a loss in body weight extending over a period of months and perhaps years, and who upon examination shows advanced lung lesions, who has been usually under the care of several different physicians in that time, and yet has never been told and does not realize that his ailment is serious. If the disease were rare or the diagnosis difficult, it would be different. Or if the disease were incurable we might pardon this neglect. But when we know that the disease is one of the most common, that its diagnosis is comparatively easy, and that recovery invariably depends upon finding the disease in its earliest stages, and that by so doing and advising proper care and methods of living, we give our patients a good chance of recovery, then there seems to be no excuse. An early diagnosis means a good chance for recovery; a late one means practically none.

There seems to be a sentiment among practitioners which deters them from informing their patient and his family of the nature of the illness. This is surely unwise, unprofessional and absurd. For unless everyone concerned realizes thoroughly the disease, its nature, and its dangers, the physician can neither secure proper care for his patient nor proper protection for others. It would be out of the question to expect a patient to attend carefully to the destruction of all sputum, to refrain from kissing his wife or children, or to live the methodical hygienic outdoor life he should, if he is unaware that he has a disease dangerous to himself and others, or for the family to see to the proper sterilization of all dishes used by the sick one or to assist him in his more or less long and tedious battle for health, if they are not told that their dear one has tuberculosis and instructed as to its nature.

Then, too, there should be notification to the proper officer or board of all cases as is at present the custom in the acute contagious diseases. This is necessary that a community may know

how many consumptives it has in its midst and where they are. This is already being tried in some of the states, but has met with great opposition both on the part of the laity and the profession alike. There seems no good reason why this opposition should exist. It is done in many diseases and no one seems to object. Why not then in Tuberculosis? It would not work hardship on the patient, but even if it did society has a right to demand it for its own protection.

It should be the duty of the health officer in each community to see that each patient and those with whom he lives are thoroughly instructed as to the proper care of sputum, the sterilization of all articles used by the patient in eating, sterilization of soiled handkerchiefs, the dangers from rugs, carpets and plush upholstered furniture in rooms where a consumptive coughs, and that even when cough is slight, certain patients will do a great amount of spraying in the act of talking. It should be seen that each patient has proper receptacles for sputum both in the house and when on the street. Hand cups and pocket cuspidors might with advantage be supplied at public expense and, where need be, collected and sterilized daily.

The same authority should be at the disposal of the people to disinfect the house when desired, and should always do so when the patient has died or the family has moved from the house, flat or apartment. It would also be very desirable that each community have a sanatorium where patients can be taken free of expense at the discretion of the health officer when in his opinion the patient lives among such surroundings that proper precautions cannot be followed out, and the health of others is endangered unnecessarily, such as would often occur in tenements and where people live closely crowded together, or where the relatives are vicious or ignorant to the extent that they would ignore all instructions.

As previously stated when you consider the restrictions imposed and the precautions required in the shipping of a corpse in a baggage car, the way consumptive patients are allowed to travel anywhere, and everywhere, with no restrictions and no precautions is absurd and abominable. Under existing conditions



one runs a chance of becoming infected every time he rides in a railroad coach or takes a stateroom on a steamer. This condition need not exist. It can be remedied and work no hardship to any one. All coaches could be furnished on a plan diametrically opposite to that now followed. Instead of making as many dust collecting and dust holding surfaces as at present, and making cars such that a thorough cleansing is impossible, they should be fitted with smooth surfaces and all interior furnishings so put in that they can be removed after each trip and the car thoroughly cleansed. Plush upholstery should be abolished and replaced by something with a smooth surface and waterproof, such as leather or other prepared fabric, which will not collect dust to any extent and can be wiped or washed perfectly clean with a damp cloth. Carpets need not be used on the floors. Something of course would have to be used in their place to prevent passengers slipping and hurting themselves as would occur on a smooth floor when the car was in motion. For this rubber matting would answer all purposes. It would prevent slipping, and if fastened by patent fasteners could be removed and disinfected at will. It would also prevent the filthily inclined from expectorating on the floor and rubbing it in out of sight with the sole of the shoe as is often seen on carpets. All seats should be removable so that they can be taken out and the floor beneath them thoroughly cleansed. The junction of the floor with the walls should be rounded, the floors should be free from cracks. Cuspidors should be much deeper than those now used and placed out in plain sight to avoid carelessness in use and have a small amount of some germicidal liquid in them. Cars can be so made that they could be easily sealed reasonably tight for facilitating disinfection.

Each car could be disinfected with formaldehyde or sulphur dioxide at the end of each trip or, if the car makes but short runs, two or three times a week. At the end of each trip, all hangings, draperies and floor coverings, such as the rubber mattings previously mentioned should be removed and sterilized by steam, the seats should be moved and the car mechanically cleansed. Or the gaseous disinfection could be dispensed with and replaced by mechanical cleansing followed by mopping of

floor and wiping of all furniture and seats with a sufficiently strong bichloride of Mercury solution. Common drinking cups at the water tanks should be abolished. Each traveller could carry his own cup, or else he should be able to buy on each train at a small cost a new cup for his own use which could be thrown away on leaving the car. On dining cars all dishes should be well scalded with boiling water in addition to the mechanical cleansing commonly termed washing. In sleeping cars in addition to the freshly laundered linen, blankets which have been sterilized since last used could be furnished.

All consumptives should be required to use sputum cups while on the train, the cups to be furnished by the trainmen and cleansed and sterilized when full free of charge.

All trains carrying passengers to and from the southwest should be fitted with special compartments in which consumptives who cough and expectorate to any extent can travel by themselves. This would be a great convenience to the patients and a protection to the public. No one expectorating a mucopurulent sputum cares to do so in the presence of others provided it can be avoided. And the special compartment would give consumptives a privacy to be desired by all. Half of a coach could be so fitted up that it would accommodate several passengers. In it, or connected with it could be kept burning a coal fire into which patients could throw their filled sputum cups which of course should be destructible. Their meals could be served in this compartment, thus preventing coughing and spraying in the dining car. In this way the many consumptives travelling to and from the West would be rendered much more comfortable and the travelling public at large would be protected from unnecessary exposure to the disease.

Another great source of possible infection is the hotel. Very few are as careful of their sputum as is desirable for the protection of others, and in private they are less careful than in public. But even with careful destruction of all expectorated sputum, rooms occupied by consumptives will become badly infected by spraying. It follows that practically any and every room occupied by a person with tubercle bacilli in his sputum, must become infected, the extent depending upon the duration

of occupancy. With this in mind, it seems safe to say that in hotels, each room should be disinfected after the guest who has occupied it has left and before being again used. As a matter of business policy and comparatively cheap advertising, the hotel which does this and lets the people at large know of it will certainly reap the harvest of increased patronage.

All hotels, restaurants and other places furnishing meals to the public should be required to sterilize by boiling after use all dishes and eating utensils which are ordinarily put to or inserted into the mouth in the process of eating. The dangers from this source are apparent to all. It is always unpleasant at best to realize that perhaps the spoon you are now using was at the preceding meal used by one expectorating large amounts of muco purulent sputum laden with tubercle bacilli. This danger is all the greater at cheap restaurants, boarding houses, and lunch counters where less care is taken in the mechanical cleansing of dishes.

If we would make our campaign thorough, all public buildings would be periodically disinfected. We must take it for granted that we have with us on all sides an infectious disease of which the specific cause is being continually scattered abroad wherever people congregate, and that to protect the community periodical disinfection is necessary. The same applies to street cars which as a rule are not even mechanically cleansed as they should be.

#### CONCLUSION.

Tuberculosis, being produced by a specific organism, its spread can be prevented by the destruction of that organism, and by preventing its spread we have conquered the disease.

In conclusion the writer desires to state that after having lived for two years at a sanatorium having approximately 200 consumptive patients with whom he was continually in intimate contact, that in his opinion there is less danger of infection in a well regulated institution than there is in ordinary city life, and many many times less than in travelling where one is apt to use berths on trains, rooms in hotels and dishes at meals that have been previously used by those suffering from pulmonary tuberculosis.

## THE MEDICAL SERVICE OF AN ARMY IN MODERN WAR.\*

By MAJOR WALTER D. McCAW,  
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**I**T is very natural for the general public to look upon medical men as a class whose mission is to relieve pain, to heal the sick and wounded, and to save life to those who have been stricken with disease or maimed by accident. The ideas of the average man on the profession probably stop at this point. To him the great man of medicine is he who, like Dr. Lorenz, makes the child born a helpless cripple to walk, or he who extracting the opaque lens from the eye makes the blind to see, or who in operating upon the innermost organs of the body now-a-days gives renewed life to patients, who formerly would inevitably have died without the possibility of help.

Undoubtedly, now as always, to heal is the special and most glorious privilege of the physician, and that doctor, be he civilian or military, who does not hold the cry of suffering as a call to arms, is entirely unworthy of his great calling. Nevertheless to limit in our minds the work of the medical profession to relieving pain and restoring lost health, is to take a most one-sided view, and shows utter ignorance of what medicine today is accomplishing and has actually accomplished.

When Jenner, in his country village, gave vaccination to the world, he did more for humanity than thousands of self devoted practitioners could have done in the terrible smallpox epidemics of olden times. When Lister demonstrated aseptic healing of wounds based upon the discoveries of Pasteur, he made possible all the triumphs of modern surgery and prevented more suffering than a thousand surgeons could do in treating the wounded under old conditions. When Walter Reed, Laveran

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\*A lecture delivered at the War College, Washington, D.C., March 25, 1905..

and Ross showed how yellow fever and malaria are transmitted, they deprived vast regions of the world of half their climatic dangers to life and health.

"Prevention is better than cure," and this proverb, a mere platitude, as it is, indicates to my mind the very first duty of the military medical officer, and by far his most important function.

In military life, especially in war, the utilitarian view must take precedence of the sentimental. As the object sought is the destruction of the enemy, the health and lives of the country's best young citizens are at times necessarily secondary to the attainment of success in battle. But that the medical department of an army has a direct part in the winning of battles largely outside of the healing art is, I believe, easily demonstrated.

In fact the treatment alone of seriously sick and wounded has actually very little to do with the success or failure of a military enterprise. Here and there we read in history of the loss of a great commander leading to national disaster, and we may easily see that in such a case successful medical treatment would have had an enormous influence upon the outcome of the war. Such instances are however rare. Also the treatment in the regiment and in the battalion of the thousand and one *minor* ailments that soldiers are subject to, is a matter of the utmost importance in preventing loss of strength to the fighting force, but the brilliant operation which saves life leaving more or less disability, the successful treatment of a deadly continued fever with long convalescence, in fact all the beautiful humane work of a modern hospital equipped with every appliance for the treatment of disease, has scarcely any bearing on the successful issue of a campaign. The patients are lost to the fighting force, and their ultimate death or recovery has no perceptible effect on the war's outcome.

That the Government, through the medical department, must provide for the seriously sick and wounded of the army the comforts and even luxuries of civil hospitals of the first order, is demanded by the people, and richly deserved by those who are injured in their country's cause. The general commanding in the

field will concede this fully, but his paramount duty being to fight the enemy, for this purpose, he is primarily interested in keeping his ranks full of well men, and he wants his army unencumbered with disabled men. Let us see now how far, and in what way he can count upon his medical department to help him to his final success in modern war, along these lines and under the system of field medical service proposed for our army, which does not differ in principle from that of most of the foreign nations.

Beginning with the regiment of infantry or cavalry as a unit, and with the light battery as the artillery unit, we find that the regiment is allowed three medical officers, a surgeon and two assistants, and twelve enlisted men, three of whom are non-commissioned officers. The duties of this little force are quite strictly limited in certain directions, but are nevertheless of supreme importance. Once or twice a day every man of the regiment must be given an opportunity to consult a medical officer for any little ailment he may have, and receive treatment. We must remember that the checking of a slight diarrhoea, the dressing of a cut thumb, or the proper treatment of a blistered foot often means a man to fight instead of a man lost. Beyond this endless attention to trifling ills and an occasional surgical operation in an emergency, and that only when it cannot be avoided, the routine duties of the regimental surgeons as medical practitioners do not go. The badly disabled man must go somewhere else; the regiment in the field is no place for him.

As sanitarians it is necessary for the medical officers of the regiment to know the men individually, to keep constantly before themselves every circumstance of the daily life of the organization, which may affect the health of the soldiers. They should know what the men are eating, what water they are drinking, how clean their persons are, what diseases are prevalent in the country and among neighboring troops, the condition of every company kitchen and sink. They need not be great scientists or great physicians, but they must be faithful, giving unremitting attention to small things, firm, tactful and unobtrusive. They need offend no one by needless officiousness, yet they must keep the colonel constantly advised of the health of his regiment. To

my mind it is worse than foolish to keep the men stirred up by constantly lecturing them on every possible danger to their health, but opportunities occur daily by which sanitary advice may be effectually given here and there to those who can compel the observance of the rules of hygiene, the officers and non-commissioned officers. It is hard to exaggerate the good that ideal regimental medical officers may do, but it must not be forgotten that they are powerless if they have not the full sympathy and support of the colonel and the subordinate commanders. To keep the ranks full of well men, by treatment and prevention, is the regimental surgeon's function. The seriously sick encumber the fighting force, and are to be removed as quickly as possible.

To treat his patients the regimental surgeon has, when the regiment is brigaded, an extremely slender equipment. It is undoubtedly right that the fighting units should be kept free from all impedimenta, not absolutely necessary, and so, according to our new field regulations, a single wagon must suffice for the medical department of the regiment, including the material of the infirmary, which weighs about 1600 pounds. Two hospital tents medicines, dressings, a little emergency food supplies, and a few miscellaneous articles make up the entire infirmary. Under ordinary circumstances enough for three months is on hand.

Emergency cases can be treated over night and the minor ailments of the soldiers attended to after sick call.

In action the regimental medical personnel must never lose touch with the command. The wounded are dressed with the first aid packet, of which each soldier in the regiment carries one, and receive the immediate treatment necessary. This work is done by and under the superintendence of the medical officers and the enlisted men of the hospital corps. The wounded are removed to whatever shelter is immediately available, and further than this the regimental medical force is not responsible. If the regiment move forward, the wounded must be left, those able to walk, of course, making their way to the rear as best they can.

Transportation of wounded to the rear is no part of the regiment's business, for in battle the regimental surgeon has not a single ambulance under his control. In camp and on the march

each regiment is furnished with one vehicle from the ambulance company, but these must all be reported to the company before battle. As the foundation of the whole system of medical service in the field, it is imperative that the regimental medical force must be of the best quality. Knowledge of military life, good judgment, and personal bravery are as necessary to them as to company officers. Men picked up from civil life can hardly be expected at first to fill such positions satisfactorily, no matter what their professional skill may be.

In the field artillery arm of the service, the medical force consists of one officer and two enlisted men of the hospital corps to a battery; the same for a signal corps company; while for a battalion of engineers, two officers and eight enlisted men are allowed. All these allowances for the immediate medical care of the fighting troops certainly do not exceed the actual necessities of active service. Every officer and every enlisted man has amply enough work to occupy his full time even in camp and on the march, while in battle their duties may be temporarily overwhelming.

The organizations which immediately believe the fighting line of its sick and wounded, now come into use, namely:

The ambulance company and the field hospital, of each of which there are in our service four to a division. During an engagement the ambulances (ten or preferably twelve to a company) are brought as near to the front as circumstances will allow, without exposure to the enemy's fire, and at the first possible moment. The personnel of the ambulance companies establish dressing stations and ambulance stations under the direction of the brigade surgeons, and then as quickly as possible transport the wounded to the field hospital. To collect the wounded, redress such as require it, and carry them to the hospital, the company has litters, travois, and a few pack mules, besides its ambulances. In camp and on the march, the companies furnish each regiment with an ambulance for daily use. The rest of the ambulances pick up on the march such sick and wounded as are left by the wayside with a proper pass from a medical officer of the regiments, and they also carry forward the patients of the field



hospitals when the latter cannot be evacuated, or in case the prospect of recovery in a reasonable time makes it advisable not to send certain patients to the base. The personnel of the ambulance company consists of three officers and sixty-nine enlisted men, about fifteen of whom should be drivers.

In the field hospitals the sick and wounded are cared for until they can be sent to the base, or stationary hospitals, or, in a small percentage of cases, returned to duty. These hospitals are to be always ready to move, and when the army is on the march, only as much of the material is to be unpacked as is necessary for the day's needs.

Each organization can care for 108 patients comfortably, and in emergency, such as after a big battle, the patients may be increased to 162 by extending the tent flies as part of the shelter.

Eight wagons are required to transport it. Its personnel consists of four officers and forty-nine enlisted men. The present allowance of eight four-horse teams is not enough for both field hospital and ambulance company, as the weight of the field hospital alone is 18,000 pounds excluding tentage for the enlisted personnel. A point of some importance is the combination of the ambulance company with the field hospital under one management. In favor of this proposition, which is the one adopted in our new Field Service Regulations, it may be said that it gives the officer commanding the field hospital opportunity to use the large force of enlisted men of the ambulance company in caring for his sick, at times when their services are not demanded in battle, or for transporting the wounded. Against it is the argument that the company will very often in its work be necessarily separated from the hospital, and should, therefore, be independent in its interior economy. It is not likely that the question will be settled to the satisfaction of all concerned, until the actual test of campaign work on a large scale is applied.

To complete the medical service of the front, only one more movable organization is required [not yet authorized], an advanced supply depot, from which the field hospitals, the ambulance companies, and the regimental medical force recruit their supplies of dressings, stores, and medicines. There need be only

one to a division, and its personnel should be one officer and eleven enlisted men. The depot may be transported in six wagons, as no large articles are carried.

We have now briefly run over the working units of the medical department of the front, of which the different organizations have each its special part to play in the daily routine of camp life, on the march, and in the emergency of battle. To direct and co-ordinate the action of the whole, a chief surgeon of the division, and chief surgeons of brigades are called for.

The brigade surgeon is the medical adviser of the brigade commander. He must collect the daily reports of sick and wounded for higher authority, forward papers, promulgate the orders of the brigade commander, and those coming from the higher authority. A special duty is assigned to him in action, the supervision of the dressing stations, including the collection and removal of the wounded from the battlefield to the ambulances. The brigade surgeons of a division are very available as members of boards for passing on discharges for disability, examining sick officers for leave of absence, etc.

The chief surgeon of a division, in addition to his supervisory work of the medical force, is especially charged with the location of the field hospitals prior to engagement, and the assignment to special duty of his officers. That this, requires him to know as much as possible of the army's movements in advance, is self-evident.

If one comes to criticize the scheme of medical service of the front in war, the subject must be approached from many sides, and the first question is this: Is the force allowed by the Field Service Regulations sufficient in personnel, material and transportation? Out of a division of 19,432 officers and men, 75 are medical officers, and 636 are hospital corps men. For every 300 men there is a medical officer; for every 30 men there is an enlisted man of the hospital corps (including, however, all drivers, cooks, orderlies and clerks). Now I believe the strength to be *fairly sufficient* and no more, certainly it will not stand much depletion during active service.

Should the entire division go into camp for several months, the medical force of the front would undoubtedly be ample.

Should a series of great battles and rapid movements take place, it would be soon strained to the breaking point, and probably be inadequate to the demands upon its services.

In material it has enough for emergency work, and the necessary conduct of the field hospitals, but any failure to promptly evacuate the sick and wounded from the front to their final place at the base or at home; any congestion along the line not properly relieved, will exhaust certain articles very quickly.

The transportation is too closely calculated and leaves no margin of safety in case of the almost inevitable loss of animals or vehicles; the number of wagons and ambulances allowed by the Field Service Regulations is too small.

When McClellan's army after Antietam crossed the Potomac in 1862, for 110,000 men there were 907 ambulances; when the army of the Potomac crossed the Rapidan, for 125,000 men there were 835 ambulances.

In Sherman's army the 14th corps, 15,880 strong, had 112 ambulances and the 15th corps had 150 ambulances. Our proposed division is larger than either of these corps, yet only forty ambulances are allowed.

Now comes the question: Is this service at the front too complex? At first sight it would seem that a wounded man is subjected to a vast deal of moving. Take, for example, a soldier seriously but not fatally wounded, but who is at once rendered helpless, say by a gunshot fracture of the leg below the knee. If in a post, a large camp, or the streets of a city, a like accident occurred, the patient would be picked up, moved at once by vehicle or litter to a hospital, his treatment completed in a few hours' time he would be put to bed, there to stay until well. In battle, his wound is dressed effectually if not very elegantly where he falls. He is moved to the nearest convenient place of shelter immediately available, and left. His regiment may move forward, retreat, or take stand in the near vicinity. Later he is moved to a dressing station and his bandages inspected or re-adjusted, then to the ambulances, then to the field hospitals. Here he is comfortable, and finds a bed, proper food, and nurses, but his peregrinations are by no means over.

The field hospitals are movable organizations; it is imperative to keep them free for new cases. Back the patient goes to the base, with stops proportionate, of course, to the length of the lines of communication and the available means of transportation, later perhaps, home to a convalescent, or a general hospital. Circumstances may shorten all this moving, but all nations have fairly well settled that in active movements of troops all these stopping places must be provided, for the disabled.

The field hospital can sometimes be brought to the wounded instead of carrying the wounded to it, but the rearward movement of the sick and wounded is necessary just the same.

Not a single organization of the medical force of the front should ever be immobilized unless a proportionate number of the fighting force are also made stationary. In the case where from circumstances of location it is desirable to continue the use of the field hospital site for more permanent treatment of the sick, a stationary hospital must be there established, for which the material and personnel must be brought from the base, releasing the field hospital force and equipment for future use with the moving army. The whole scheme of medical service at the front will fall through, if the organizations are depended upon to do more than fulfill the special functions for which they are adapted. The rules of different nations vary considerably in the length of time that the wounded are permitted to stay in the field hospitals. In Germany they are supposed to be evacuated in about six or seven hours, and the German equipment is not quite as elaborate as ours. With us patients might have to stay in the field hospitals and receive all necessary treatment for a day or two. Here, of course, there is an immense difference in terrain from continental Europe. In a war between Germany and one of her neighbors, the armies would manœuvre over a country with excellent roads, thickly dotted with villages and towns. The seizure of suitable buildings for the comfortable treatment of the sick and wounded would nearly always be practicable. Tentage is therefore reduced to a minimum, so the German movable hospitals need less material than ours; and can be kept free of crowding, retaining their wounded for a few hours only. In a war be-

tween Mexico and the United States, or between Canada and the United States, the material for movable hospitals would of necessity be much more bulky, principally on account of tentage; and the wounded would often have to be treated a day or so in the field hospitals, before evacuation could be accomplished.

It seems to me that this recognition of the absolute helplessness of the medical service of the front to give any sort of permanent aid to the sick and wounded cannot be too much insisted upon. The work of the regimental medical organizations, the ambulances and the field hospitals, is of immense importance and directly concerns the efficiency of the fighting force, having thus a positive effect upon the result of the campaign, but anything beyond temporary relief to the suffering is not to be expected. The sanitary work of the medical officers with fighting organizations, supervised by the brigade and division chief surgeons, should prevent loss from disease, and *will* do so exactly in proportion to the extent to which it is seconded by the efforts of officers and non-commissioned officers in enforcing the obedience of the soldier to the simple rules of healthy living; rules neither complex nor difficult of comprehension. The ambulance company and field hospital relieve the fighting army of its encumbering sick and wounded as quickly as may be, but must always be themselves clear of encumbrance before another battle or forward movement. All of these movable organizations are considered "ambulances" under the terms of the Geneva Convention, and are exempt from capture.

It would be a mistake to use the field hospitals for permanent treatment, even in times of relative inactivity. The proportion of 432 beds, for nearly 20,000 men is so entirely inadequate, for anything except emergency, that the slight gain of hospital room would not begin to balance the disadvantages of being unprepared to move at short notice. Much better to keep the field hospitals packed than to begin to rely upon them as permanent places for treatment of patients. The service of the front which I have sketched is, in modern armies, confined to the army medical organizations. Seldom, and then only in great emergency, will it be advisable to use at the front the personnel of

voluntary aid societies, always so generously offered by a patriotic people to their soldiers. If used at all, such voluntary aid should at the front, be confined to the early aid and transportation rearward of the wounded.

The hospitals of the Red Cross Societies find their proper sphere of usefulness on the lines of communication, at the base, and especially at home, as supplementary to the regular military organizations.

As the officers and enlisted men of the medical department must be soldierly disciplined and familiar with military life, there can, it seems to me, be no question but that in peace times, the full quota of field strength for regular forces should be maintained in readiness.

While we are able to approach the problem of the medical service of the front with some kind of exactness, and thus make suitable provision for its general solution, it is of course entirely otherwise with the service of the rear. Here each campaign presents its own problem, much of which cannot be foreseen. Climate, distance, presence or absence of free unobstructed communication by rail or water, and many other conditions, may make the treatment of the army's sick and wounded a simple or a very complex proposition. Briefly, it may be said that now the professional side of the medical department finds its full sphere of activity, whether at the base or in the home country, it may be thousands of miles away. No necessary appliance or improvement known to surgery or medicine need be omitted. No comfort available to city residents need be wanting. This is the part of the medical service in war in which the people take the greatest interest, and of which they become the severest critics. The citizen friends and relatives of the soldiers in the field will stand for losses in battle, or unavoidable hardship at the front, but their patience does not extend to putting up with any lack of nursing, comfort, or even luxury for those who come away from the battle field alive. I may also say that this is the part of the medical service that costs the most money, in buildings, furniture, hospital ships, hospital cars, ice machines, steam laundries, X-ray outfits, operating rooms, etc. It is clearly im-

possible without an unwarrantable expenditure of public funds to provide in time of peace for the adequate medical service of armies not in existence, but even for the final treatment of sick and wounded in war much preparation may be and should be made. The standing army of any country needs, in addition to the field medical force of the front, enough medical officers and men of the hospital corps to treat at the rear and at home all the sick and wounded that can be ordinarily expected from the standing army at full strength. As volunteers, etc., are added, proportionate medical force is, of course, also demanded, but the regular army should be able to provide at least a nucleus of trained medical officers of the higher grades to superintend the work of the newly enrolled surgeons, to be the chief surgeons of divisions or of corps, to administer the supply of the entire medical department, to scrutinize and keep correct the records of the sick and wounded, and so protect the interests of the individual and the public treasury when the inevitable pension claims begin to pour in.

Indispensable for proper conduct of all the complicated medical affairs of a war, are trained medical inspectors. No provision is made for these in peace times, but no class of men in the medical department performs more necessary work in war.

The new manual for the medical department of the army, now in preparation, has provided for the medical service of the base and lines of communication as follows: For each division of 19,432 men, one base hospital of 500 beds is allowed; also two stationary hospitals of 324 beds each, a total of 1,148 beds, or accomodation for just a little under 6 per cent of the whole force.

The base hospital is fixed, established generally in buildings, furnished with all necessary field furniture to be replaced with regular hospital furniture when permanently established. The stationary hospitals are partly movable; but not freely so. They should also be established in buildings of more or less permanent character when possible. Both are, however, provided with full tentage. One or both of the stationary hospitals can be moved toward the front whenever considered advisable, especially when the lines of communication are lengthened; they are then estab-

lished, and serve either as the final place of treatment for sick and wounded of moderate severity, or as resting places for those who are manifestly destined to be sent further back. The stationary and base hospitals are not to be provided with wheel transportation, excepting the three or four ambulances and wagons necessary to their interior economy. Both the base and stationary hospitals are really field organizations and will often have to be established under canvas with field equipment. It is, however, impossible to keep a tent hospital in one spot, even when floored and framed, in a condition of cleanliness, and it is very expensive to maintain on account of breakage of the light furniture and rotting of canvas. So whenever the base of operations is foreseen to be of long duration, with well established lines of communication, it will nearly always be necessary to construct pavilions and use therein the same furniture that is issued for the post and general hospitals of the army. There will always be plenty of demand for the tentage and field equipment from the field and more advanced stationary hospitals.

Often it will be possible and desirable to build large general hospitals at the base. Sometimes there may be, when the base is a large city, regular hospitals already existing, or buildings suitable for such, but as I said, it is impossible to foresee generally what the best method of handling an army's disabled at the base and at home will be. It is obviously necessary, however, to provide in advance material for at least as much hospital room at the base as is proposed by our new medical manual,—1,148 beds to a division of 19,432 men.

From first to last we have now, including field hospitals, provided for bed room for about eight and one-half per cent. of the army, and it would have to be a very innocuous war or a very healthy environment, when much more than this would not be required. The sick report of the army in the Philippine Islands during the first three years was about seven to eight per cent. on the spot, not including those sent home. In the present war, in Manchuria, a single great battle has thrown many times as large a percentage of wounded alone upon the surgeons' hands. In 1864, nine per cent. of the federal army's strength was in the



general hospitals alone, with six or seven per cent. at the front additional. But as provision for treatment of invalided soldiers at home or at the base in general hospitals could no doubt best be made after the special conditions of the war were more clearly seen, perhaps this allowance of eight and one-half per cent. for the army in the field is enough to have in readiness. It is the desire of the medical department of the United States Army to keep on hand the furniture and material for regimental, field, stationary and base hospitals for 250,000 men according to these figures. A large amount is already in store, and the rest is to be bought as appropriations become available for the purpose.

The nature of the military operations will largely govern the rapidity and ease of handling the army's disabled.

Thus in defensive operations, either in fortifications or in field works, there is no delay in collecting and treating the wounded; the element of transportation, always the most difficult problem for the medical department is simplified. The patients, providing there is shelter for them, are promptly handled, and loss of life from shock and hæmorrhage is lessened.

When a stationary enemy is attacked, the medical department, although likely to be confronted with an enormous number of wounded, is at least not obliged to lose much time in proceeding to work, for the hospitals and materials for treatment can usually under such circumstances, be prepared in convenient places, without hurry and after due deliberation. The wounded of assaulting parties, however, will usually fare badly unless the assault is successful. It will often be impossible to get at them until much suffering and loss of life have occurred from delay.

The most difficult of all conditions for the medical department is when two opposing armies operating in the open come into contact. Here prompt treatment of the severely wounded seems to be a matter of pure chance. With infantry, cavalry and artillery filling all the approaches to the field, and manœuvring over an extensive terrain; with all these approaches covered by the enemy's fire as far as he is able to accomplish this, the bringing up of the ambulances, to say nothing of the wagons containing the field hospitals, may be impossible for one or two

days. A retrograde movement, the coming of night, the occurrence of bad weather, all these may render impracticable the prompt removal of wounded. The dressing of wounds must be done by the men themselves or by their comrades, with only the limited help of the small regimental medical force, and deaths in large number from exposure, hæmorrhage or shock, are inevitable.

To conclude: the medical service of an army in modern war, must be a compromise between what is ideal and what is practical. It can never be made ideally efficient for *extraordinary* circumstances, without maintaining and paying for a force of men, and an amount of transportation out of all proportion to the fighting force, at a money cost that no nation will afford. Sufficient for the sanitation and treatment of the army under ordinary war circumstances, it should be; also for the final treatment of those disabled ones who reach the safe haven of a base or general hospital. But to treat on the field, to collect and remove the wounded in a great modern battle, without great loss of life from delay alone, is impossible, or at least impracticable.

Modern surgery requires that a wounded man be treated immediately, aseptically, and with as little movement of wounded parts as possible. Battlefield surgery is attended with loss of time, more or less inevitable dirt, and, above all, with unavoidable movements of the wounded parts in transportation.

No department is as dependent upon transportation as the medical. Healthy soldiers may carry food and ammunition enough for several days with no transportation except their own legs. A wounded man who cannot walk requires four men to carry him on a litter, for long distance; two at least for even the shortest distance. An ambulance can carry but four men stretched at full length; eight only who can sit up. It does not take much arithmetic in the light of some of the wounded rates recently received from Manchuria, to show that any medical department maintained in peace time, with reasonable regard for money cost, will in time of battle be necessarily unable to give that timely and perfect help to the wounded, that modern surgery demands.

To use the necessarily small force to the best advantage under given circumstances, is then the military problem of the medical department in every modern war.

Its military value as a factor in the ultimate outcome of the war, depends upon its efficiency, 1st, in preventing disease by sanitation and treatment of minor complaints, 2nd, in removing the encumbering wounded, the worst impedimenta that an army can have, and along these two lines primarily must the commanding general recognize the medical department as an essential part of his command, to be given due consideration in the tactical distribution of his forces for any proposed military operations.

To its patients and to the public the medical department must answer for its humanity and skill in medical and surgical treatment.

I have made only a very partial exposition of a many sided subject. Time forbids discussion of such important matters as the establishment and operation of general hospitals, hospital ships and cars, special handling of contagious and epidemic disease, the use of auxiliary organizations, such as the Red Cross, etc.

I have only tried to sketch as it appears to me what the work of the medical department with the army in the field should be. It is our pride that of all the staff corps, none is so intimately connected with the daily life of the men behind the guns. Their hardships and perils are ours. Without the sympathy and support of the line, and recognition of its true use, the work of the medical department is crippled, and its very real potentiality in the direct attainment of success is lost.

#### “SLEEPING SICKNESS.”

THE following conclusions, from his observation of a case, are arrived at by H. Dupont: (1) From a symptomatological point of view: (a) A vesiculo-papular eruption, with itching, and later on eschars. (b) A gradual failing of the intellectual functions, and a tendency to sleep which becomes stronger and stronger till it ends in a deep sleep. (c) A progressive muscular atrophy. (d) Exaggerated reflexes. (e) Tachycardia. (f) Febrile symptoms especially manifested in the latter part of the disease. (2) From the microscopical point of view: By the presence of trypanosoma in the blood and cerebro-spinal fluid, increasing in number with the course of the disease.—S. M. DELOFFRE.

# Enno Sander Prize Essay=1904.

## THE RELATION OF THE MEDICAL DEPARTMENT TO THE HEALTH OF ARMIES.

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*(Concluded from the April Number).*

FOR the prevention of epidemic diseases in war the Medical Department of no army with which I am acquainted is at the present time efficient because it has not the power to make adequate preparation in peace, and because in war it is not given executive authority for its responsibility for sanitation is shared with all other corps and departments, and is thus lost in many channels. In this ambiguity the relations of the medical department to the health of armies is defective; the position is an anomalous one, and cannot be defended. To enable the medical department to undertake the larger sphere of duty, which is suggested in this paper, and which public opinion, with its greater knowledge of modern warfare, demands from it, the following proposals are made.

1. The specialization of Medical officers.
2. The creation of a sanitary service.
3. The creation of a subordinate medical service.
4. The reform of the Nursing Service.
5. The Reorganization of the Army Medical Corps (non-commissioned officers and men).
6. The creation of a National Ambulance Service.

These proposals will be separately considered, they have been already referred to, but the grounds on which they are based require further explanation. The specialization of medical officers

should be into three major groups namely physicians, surgeons, and sanitary or health officers. In the selection of candidates it will not be advisable to split up the profession in the way of specialities for the more general is the education of young medical officers the more useful will be their army career, but what is really necessary is to give those officers who show a special aptitude for any particular branch of medical science, the opportunity to cultivate it. Physicians should include officers skilled in tropical medicine, in fevers, and in the diseases of women and children. Surgeons would consist of operating surgeons, and specialists in ophthalmic, dental and aural surgery, etc., and the Sanitary group would consist of experts, and executive sanitary or health officers.

The employment of civilian physicians with armies in the field has been recently advocated on the grounds that army medical officers have not the knowledge and experience of dysentery, enteric fever and other diseases which are common in war. It is impossible to accept this conclusion for the greater number of army medical officers have had a large experience of these diseases in peace, it is especially true of the British medical service, which has had this experience in foreign garrisons and in small wars, and under the most diverse climatic conditions; this statement applies with equal force to the medical service of the regular army of the United States of America. It ought not to be necessary therefore to replace army medical officers by civilian physicians however desirable it may be to supplement their service in war; what however seems really desirable is departmental selection.

That army medical officers, who are confined to their military practice in peace, can in any great numbers be qualified for the post of operating surgeons is an impossibility; manual dexterity quickness of eye, and readiness of resource can only be gained by constant practice, therefore in time of war operating surgeons must be obtained from the civil profession, who practice in large centres of industry where trade accidents are numerous; the patriotism of the medical profession in all countries may be relied upon in times of national emergency. Army med

ical officers who show special aptitude, and who may be selected for the post of operating surgeon, should be deputed to civil hospitals, or should be associated in some other way with the work of profession in civil life. Armies, especially armies raised by voluntary enlistment, recruited from urban populations and engaged in manufactures, require to a large extent the services of specialists in dental, ophthalmic, and aural surgery.

The experts of the sanitary group would be bacteriologists, chemists and engineers, who need not be medical officers or military engineers; for some reasons it is desirable that they should be entirely independent of military authority for the nature of their work does not require military control. Fitness for office should alone determine their appointment and eminence in their particular line should be so unquestioned as to command respect for their opinions. Executive sanitary or health officers should belong to the medical department, and they should be in active professional work, but this leads up to the second proposal.

The necessity for an army sanitary service has obtained universal acceptance though its constitution, as we have seen, is a subject of controversy. The reader, who has followed this paper so far will be prepared to admit that strong reasons have been given for this service being formed and worked by the medical department; it is on these lines that the present proposal is made, and no difficulty is anticipated in carrying it out once agreement is reached as to what should be its executive and administrative units; it is a truism to say that the object aimed at is efficiency in war but the tendency during peace is towards economy consequently sanitary appointments are frequently made to stations and to districts without any reference to what is necessary for war.

The executive sanitary unit must be the regiment or corps unit; in war it is the composition of the force and not locality which determines the distribution of the sanitary service for the force is constantly changing, and occupying new ground; the organization for war therefore must be adopted in peace, without it the sanitary service will never be efficient. To carry this out a medical officer should be appointed for a term of years to each

regiment as the sanitary staff officer of the Colonel Commanding (a) to advise on all questions connected with the health of the regiment, and (b) to have command of its sanitary establishment, all other duties, which are now performed by the medical officers attached to regiments during war, should be performed by these officers in peace; they should make themselves thoroughly acquainted with the health of the men, they should investigate all cases of zymotic disease, and with this object they should keep registers of barracks and companies.

The regimental sanitary establishments of non-commissioned officers and men should be supplied by the sanitary service, but no objection would be made to regiments enlisting their own, provided that for training and for passing certain qualifying tests they came under the orders of the sanitary service, only a small number would probably be so enlisted. It will be more convenient to defer further remarks on this subject until the reorganization of the medical corps is being considered.

The brigade is suggested as the administrative unit of the sanitary service, because of its compactness and because its component parts are not likely to be long separated, which is so important as it is not office work and paper superintendence which are required, but personal inspection. An active sanitary administrative officer of ripe experience supervising the health of his brigade, and advising the sanitary staff officers attached to regiments would do much to secure the military efficiency of the troops in war. I know of no more necessary reform, or one which holds out a greater promise of permanent usefulness, besides it would save the State the vast sums of money, which are now squandered in making good former neglect; without it the relation of the medical department to the health of the army it ministers to can never be satisfactory.

The creation of a subordinate medical service logically follows from the specialization of the medical department, without it co-operation is impossible for as already shown a great gulf separates medical officers from the non-commissioned officers and men of the army medical corps. If medical officers are to be set free from routine duties, many of which at the present time they

alone are capable of performing, it must be through the help of an intelligent and well educated subordinate service. The technique demands it; whether we consider hospital economy, sanitation, or the care of the wounded on the battlefield we are confronted with the same necessity. There may be here and there found in the corps some exceptions, but what has to be considered is the capacity of the corps as a whole. The progressive spirit of the age demands from medical officers a standard of excellence, which some twenty or thirty years ago was unattainable. Has the whole corps shared in this progress? Decidely not, nor is it possible with the present system of recruitment and training.

Candidates for the subordinate medical service should be youths between 16 and 18 years of age, of sound health, and of good moral character preference being given to the sons of warrant and non-commissioned officers, and of old soldiers, which would be a recompense for good service, besides these lads would bring with them some idea of military life and being educated in military schools their education could be directed for this purpose. After undergoing a preliminary competitive examination those selected should be sent to a training college or school, and after passing out, they should be posted on probation for a year to a large military hospital. Candidates thus selected and trained would be of the greatest assistance to the medical department both in peace and in war; medical officers would be relieved from much anxiety, and would be able to devote themselves to the higher duties of their profession, and the chain of responsibility would be strengthened in its weakest part. If public opinion is to hold the medical department responsible for failure in war it must either sanction the creation of this service, or the establishment of medical officers must be largely increased to an extent, which would be financially ruinous.

The substitution of female nurses for male attendants has found general acceptance; so far as military conditions will permit it should become universal, therefore they should be employed in all hospitals during peace, and in general and stationary hospitals in war. Male attendants are only required in detention wards, in field hospitals, and in special wards for prisoners, luna-



tics, and venereal patients; women nurses have greatly added to the comfort of the sick, have relieved the medical department of many anxieties, and have raised the whole tone of military hospital life. It is a reform which is gladly welcomed and all the more as shadowing a fairer distribution of work between men and women in the near future; to relegate men to men's work will be a national gain.

For the purpose of this paper it is taken for granted that a subordinate medical service will be created, but, whether that be so or not, the reorganization of the medical corps cannot be very long deferred, for the medical departments must be divided into two branches (a) medical, and (b) sanitary. That is one of the lessons of modern wars which cannot be neglected. The reform of the nursing service facilitates this arrangement and so also does the amalgamation of the bearer company with its field hospital, which has been advocated by Sir Frederick Treves and by many others. The medical branch should be subdivided into (1) sick attendants, (2) cooks, (3) clerks, and (4) general duty orderlies. Sick attendants will be employed during peace within the limits assigned in the preceding paragraph, and in war in attendance on the wounded on the battlefield and during their removal as well as for duty in field hospitals. The standard of cooking in military hospitals requires improvement; it is wasteful and often coarsely done; the training of hospital cooks should be altogether on a higher plane. The clerical duties of the medical department in administrative offices and in hospitals are onerous and require a steady and hardworking staff. The general duty orderlies will be employed in supply and store duties, in the care of government property, and as the designation implies, in the general duties of the hospital, relieving nurses of certain manual work, which men can best perform.

In the proposal for the creation of the sanitary service its administrative and executive units were outlined but the consideration of the details of its organization was postponed as being more appropriate under the reorganization of the medical corps for the medical department must be both its master and teacher. At the present time there is a general movement in favor of hav-

ing large district hospitals in which all the important cases of sickness which occur in the command would be treated; it is a very desirable arrangement not only in the interest of the sick, but for the education of the medical corps provided that nothing is done to lessen the responsibility of the officer commanding the hospital or to interfere with his authority over the establishment.

Of course such a position would be an impossible one without co-operation. Hence hospitals are organized into medical and surgical divisions each under its own immediate head. But I submit that this is insufficient, and that these hospitals require a separate sanitary establishment specially trained and under the command of a duly qualified officer who would be the sanitary staff officer of the officer commanding the hospital.

The suggestion is that the sanitary service should be organized in companies, the headquarters of the company being posted to the district hospital, and the detachments from it would be the executive units belonging to regiments, etc., serving in the district. The non-commissioned officers and men would be graded as follows. Warrant officers as first class sanitary inspectors, sergeants as second class, and corporals as assistant sanitary inspectors after being specially trained and after passing certain qualifying examinations for advancement to each grade; they would supervise the work and instruct the men of the branch in practical sanitation.

The adoption of these proposals imposes certain obligations upon the medical department and upon military authority. Briefly the position is restated as follows. If the health control of the medical department of armies is to be effective the department must fit itself for the duty by the high professional attainments of its officers, by the efficiency of its subordinate establishments, by co-operation and by a readjustment of its sanitary and medical duties to meet the altered conditions of modern warfare. On the other hand, military authority also must recognize this altered state of affairs, and must accord to the medical department greater freedom of action; if both are satisfied that military efficiency in war depends in the first place upon the health of the army there can be no difficulty in coming to an agreement; cer-

tainly, if the sphere of duty of the medical department remains restricted there will be always military inefficiency and medical failure in war.

Supposing that these proposals are adopted, one of the good results would be that the medical department would be so associated with the daily life of the army that in medical as well as in sanitary matters the medical corps would be its instructor. The officers and men of the medical branch doing duty in district hospitals would instruct the troops how to apply the first aid dressing, and what the general care of the wounded on the battle-field should be. While the sanitary branch of the corps, especially the executive units, would instruct regiments, etc., in personal hygiene, and in all the other matters which make for health especially in relation to environment and to the prevention of zymotic diseases.

For the evolution of the medical department on the lines which are suggested in this paper it will take time, and time, as we know, is all important besides there will be wanted the experience, which will teach what should be omitted, what corrected, and what should be added; it is progress not perfection which is aimed at. Even with the most perfect medical organization, according to our present knowledge, it may happen in war that there may be periods of great sickness through sanitary faults and through circumstances over which a regenerated medical department has had no control. Of this contingency we have had no experience for the medical department of no army up to the present time has been so organized that it could have dealt satisfactorily even with the vices of sanitation which were of that army's own making.

Be this as it may, we know that in the great battles of the future it will be impossible for the medical department of any army to succor the wounded on the day of battle, and that much suffering and loss of life will be the consequence. I have recurred to this question because of its supreme importance, and because, until it is remedied as far as human effort can do so, the relations of the medical department to the health of armies will not be satisfactory. The creation of a subordinate medical service and

the reorganization of the medical corps with the adoption of those other measures which have already been suggested will go a good way towards giving more skilled medical attendance in the field, but the true remedy is the creation of a national ambulance service. To treat this subject except in outline is impossible within my present limits, it will be sufficient to say that what is wanted is a homogeneous national ambulance service which can only be obtained by the exercise of some self-denial on the part of various societies, which will place the national good before social considerations. Sir Frederick Treves, in a letter to the *British Medical Journal* recently called attention to the admirable work done by the Japanese National Ambulance Society in the Russo-Japanese war, and the creation of a similar service has recently been suggested for the British Army.\* Should this proposal meet with general acceptance it is hoped that it will lead to an international ambulance service, which would work under rules framed by another Geneva Convention; the present rules in any case require revision.

The social relations of the Medical Department to armies will be considerably modified should these proposals be adopted. With the personal side of the question I am not concerned except in so far as it influences public duty. But there is no doubt that from them there will grow up a greater sympathy between the medical department and armies which would be to the public advantage. It is said that a good General studies the character of his opponent and modifies his plans accordingly; if knowledge of character be useful to an opponent surely it is of not less account to men working for the same object. Social intercourse with the play of a little imagination and tact, a quality by the way which is often misapplied, will smooth over many difficulties.

The rank and title of medical officers have not yet been discussed though it is germane to the subject. I have thought it better to discuss the duties of the medical department and the position it should hold in reference to them in peace and in war for from this description the necessity of granting medical officers military rank and titles is incontestable. The principal on which this is based is that every individual whose duty brings him into

\*See Letter: "A National Ambulance Service" in the July 1904 number of the *United Service Magazine*.

contact with the soldier must have a recognised military position with which the title must correspond. To no service does this principle apply more closely than to the military medical service; the fact that the medical profession is the most altruistic of all professions enhances its claim and makes it still more necessary that the military rank and titles of medical officers should conform to those of the armies they belong to in every respect.

This question will probably occur to the reader. Why is it that, in discussing the relations of the Medical Department to the health of armies, the writer has dealt so largely with details of organization and with collateral subjects? It is because in all schemes of army organization and of departmental reforms there has been hitherto a tendency to be satisfied with a name or with some one special measure. As for instance changing divisions into districts, and districts into army corps, or giving them some territorial designation. It really would not matter only that people, in other words the Electorate, who are unacquainted with military affairs, become thereby lulled into a sense of false security. Again some special measure has been adopted such as (taking the Medical Department as an example) the amalgamation of the bearer company with its field hospital, or the creation of a Medical Staff College, and from them, admirable and most desirable as they are, medical efficiency in war is expected. In my opinion it would be as reasonable to expect that a man would be protected from the cold on a winter's day by dressing him in a top hat and frock coat only. I use this rough and ready illustration to show that the Medical Department must be built up bit by bit from the foundation, and must be maintained in peace as in war. It is this belief which has induced me to write this paper, which embodies the views I had formed of the relations the Medical Department should hold to the health of armies long before the Spanish American and the South African Wars occurred, and which these wars have so amply justified.

## Contemporary Comment.

### PERSISTENT DIARRHOEA WITH PROFOUND ANEMIA, APPARENTLY DUE TO BLOOD DESTROYING PROTOZOA IN THE COLON.

TRANSLATED BY LIEUTENANT SAMUEL M. DELOFFRE,  
ASSISTANT SURGEON IN THE UNITED STATES ARMY.

**P**RIVATE C. of the colonial infantry, Tonkin, was admitted to the military hospital at Marseilles January 19, 1904, with diagnosis of "chronic diarrhoea and malarial cachexia." Age thirty-five. Thirteen years service. Family history negative.

*Previous history:* Severe attack of typhoid fever in 1891, lasting three months. Attack of dysentery in 1895 in Martinique, lasting eight months; recovery without hepatic complications.

*History of present disease:* In 1900, at Hanoi, Tonkin, he had an attack of malaria, followed in May by an insidious, persistent and resistant diarrhoea, averaging five to six stools in twenty-four hours, sometimes as many as fifteen. No blood nor glairy substance at any time found in them. This diarrhoea persisted for over two years, ceasing in September, 1902. He was free from any intestinal trouble up to March 1903, when, on returning to Tonkin, the diarrhoea again appeared and persisted till his return to France at the end of the year.

#### CLINICAL EXAMINATION.

*Objective Symptoms.*—On inspection his appearance does not resemble that of the ordinary diarrhoeas. There is profound anemia, puffiness under the eyes, skin infiltrated, general edema, of the lower extremities and scrotum, tongue coated, dorsum of hands pit on pressure, abdomen enormous from ascites caus-

ing severe dyspnoea on the slightest motion or on eating. No evidence of syphilis nor of alcoholism.

Percussion and auscultation: lungs negative, heart dulness slightly increased, heart sounds muffled, especially at base; no organic murmurs; haemic murmur at the pulmonary cartilage transmitted to carotids; pulse seventy, feeble. Liver slightly diminished in size, but not enough to account for the ascites from portal obstruction. Spleen cannot be palpated, no enlargement on percussion. No pain nor tenderness over kidneys. Skin dry and rough.

*Subjective Symptoms.*—Anorexia, acid regurgitations, yellow serous stools, five or six per twenty-four hours, containing yellow lumps. Urine scanty, rich in urates, no sugar, no albumen, urea twenty-one grams per litre, no urobilin. Genito-urinary examination negative. Nervous system not involved. Weakness extreme, has lost twenty-five kilograms in the last six months.

Blood examination negative; no haematozoa, no melaniferous leucocytes, no free pigment, nor other forms of parasites. Red corpuscles 842,200, numerous giant corpuscles, no nucleated reds, moderate leucocytosis, no large mononuclear, no polynuclear eosinophiles, a few lymphocytes.

In brief we have a case of persistent diarrhoea, with an edema independent of the heart or kidneys, and an anemia which is not caused by malarial nor other organisms.

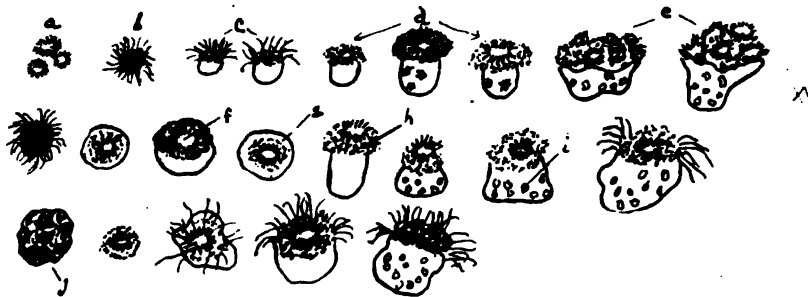
#### CLINICAL HISTORY.

Therefore a parasite of a higher order was thought of, probably located in the intestines, similar to the ankylostomum, and capable of producing the observed symptoms. A microscopical examination was made of the stools, and a blood destroying protozoa which to our knowledge has never been identified was found in abundance. A small particle of fecal matter was taken up with a pipette and examined, without staining, and with a No. 1 eye piece and Verick's No. 2 and 6 objectives.

Thus it was easy to detect the presence of a polymorphous parasite whose different forms seem to be due to different stages of evolution, a ciliated infusorium analogous to the *Paramecium* of Malmsten, found in the mucus of lenteric diarrhoeas and acute dysenteries in Cochin China.

The simplest form of the parasite is a gray, granular, spherical mass, with long slender cilia growing in every direction, like a horse chestnut. At a more advanced stage it takes the form of a sort of transparent vesicle, surmounted by the ciliated granular substance.

The vesicle continues to grow larger, the cilia become rarefied, and in their center appears a circular mouth whose borders are supplied with short vibratory cilia. In the vesicle may be plainly seen as many as fifteen globules, red, some still spherical others mulberry shaped, floating like boluses of food, and colored by hemoglobin. Sometimes a distinct constriction appears between the vesicle and its granular head, giving the parasite a mushroom shape, with swollen head and base. The vesicle still increases



Different forms of the parasite observed in the preparations.

*a.* Elements of the zooglea, grouped without capsule. *b.* A young and ciliated organism. *c.* Formation of the vesicle. *d.* Adult hematophagic Infusoria. *e.* Formation of new zooglea. *f.* Ciliated stroma. *g.* Transparent vesicle. *h.* Granular substance composed of nuclein. *i.* Mulberry shaped red globules. *j.* Encapsulated zooglea.

in size and the cephalic disk becomes deformed, its edges become irregular and budding; it segments and splits up, and globular ciliated bodies appear, resembling cypress balls. Without doubt this is a new generation of parasites. We have never seen this parasite in active motion, probably on account of defective technique, as the stools should have been examined as soon as passed, and in a warmed, serous fluid.

The only attempt at staining was with picro-carmin: the granular disk was stained by the carmin, and the vesicle a light yellow by the picric acid. The exact seat of the parasite was not determined, whether the small or large intestine; but large



enemata of silver nitrate were clearly indicated. On the 3d, 4th, and 5th of February these were given in the strength of 1 to 1000 and the parasite disappeared within forty-eight hours. The stools remained liquid and yellowish green for three days, then became thicker and more solid. The edema of the face and extremities as well as the ascites disappeared rapidly, with profuse diuresis. On the 10th of February his condition was wonderfully improved, and on the 14th he was having two nearly normal stools a day. On the 19th he had 2,557,500 reds, and his condition steadily improved.

Without doubt we were dealing with a parasite accidentally ingested with polluted water, and found only in Tonkin, as the patient had never left Hanoi. This parasite was capable of multiplying itself rapidly in the large intestine (as shown by the treatment), and was highly hematophagic in its action, capable of producing death by anemia. The number of parasites must have been enormous,—eight or ten could be seen in one field. Whether they have the power of fixing themselves on the mucous membrane and sucking the blood cells, or whether they obtain these cells from small ulcers of the membrane, would be interesting to know.—*Le Caducée*.

#### WOUNDS PRODUCED BY THE JAPANESE RIFLE.

SOME years ago when the proposal to adopt the Meiji rifle for the Japanese Army was under consideration, Dr. Kikuchi reported strongly in favor of it on the ground that its bullets would have greater stopping power, though the wounds it would make would heal quickly. The rifle has the smallest calibre of all existing rifles, and its trajectory is very flat. Dr. Kikuchi, who is a staff surgeon in the medical department of the Japanese army, has now written a report claiming that the experience gained during the earlier stages of the present war has fully confirmed his conclusion. The stopping power of the bullet he attributes to its cutting clean through arteries and veins, causing a large loss of blood and consequent weakness and faintness, so that the man is unable to proceed. In the

wounded Russians who fell into the hands of the Japanese after the battle of Yalu, healing occurred with great rapidity, and at the date of Dr. Kikuchi's report, forty days after the battle, even the most severely wounded were convalescent. One of these patients had been shot through the lungs, and must have lost a large quantity of blood, estimated as much as a pint and a half or a quart. Another case which recovered was shot in the stomach. These statements are confirmed by a Central News telegram from Vladivostok, which states that in the cases of about 100 officers and 6,000 men treated in the Russian Military and Red Cross Hospitals for bullet wounds healing took place rapidly. Even in cases in which the chest or liver were penetrated recovery took place, as also in one instance of a bullet wound traversing the head. Cases of this kind were, we believe, not infrequent during the Boer war, in the case of wounds produced both by the Mauser and the Lee-Metford rifles.—*British Medical Journal*.

#### ABDOMINAL HERNIA AND ITS RADICAL CURE IN THE ARMY.

**H**ERNIA (Herhold, of the German Army) should be rarely considered as the result of military service. The latter aggravates it however, and renders the man unfit for duty. Its radical cure, often done in the French and Austrian Armies, is rarely done in the German service. (1) All men who are unfit for duty on account of hernias should be operated on if willing. (2) Officers, non-coms, and candidates should be operated on. (3) Soldiers whose hernia do not prevent their doing duty, should not be operated on. (4) The operation of choice is Bassini's. (5) The radical cure should only be undertaken in the presence of absolute asepsis. (6) It should only be done by a medical officer, especially trained in surgery.—S. M. DELOFFRE

# Medico-Military Index.

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**Bruce (D.)** Military Plague Hospital, Maitland, Cape Town, *J. Roy. Army M. Corps*, Lond., 1904, ii, 292-296, 1 pl.

**Donnelly (J. F.)** Medical service in the merchant marine. *Med. Rec.* N. Y., 1904, lxxv, 861-864.

**Longmore (Sir T.)** Letters from the camp before Sebastopol, 1855. *J. Roy. Army M. Corps*, Lond., 1904, ii, 358-370.

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**Barthélemy and Eychène.** [Lightened lumbar knapsack: its relation with the development of tuberculosis in infantry: necessity of adopting the lumbar sack, and of lightening its weight]. Par., 1904, A Moloin, 7 p., 8°.

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**Brousse.** [Study of the massing of barracks for troops in Madagascar]. *Rev. d. troupes colon*, Par., 1904, iii, 371-381.

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**Dedet.** [Colonial military patients at mineral springs: station at Martigny (Vosges)]. *Caducée*, Par., 1904, iv, 161.

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**THE HONORABLE WILLIAM EUSTIS.  
MILITARY SURGEON AND SECRETARY OF WAR, 1753-1826**

## Editorial Expression.

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### Medico-Military Secretaries of War.

WILLIAM EUSTIS, MILITARY SURGEON AND  
SECRETARY OF WAR.—1753-1825.

**N**O citizen of Massachusetts was more distinguished in his day than the tenth governor of the commonwealth, the eminent military surgeon and Secretary of War, William Eustis. Secretary Eustis was the second son of Benjamin Eustis a prominent physician of Boston, where he first saw the light on June 10, 1753. After an excellent preliminary training at the Boston grammar school under the famous Mr. John Lovell, he entered Harvard University at the age of fourteen and took his baccalaureate degree at that institution at the Commencement of 1772.

He then entered upon the study of medicine in the office of Dr. Joseph Warren, then a famous physician and later a celebrated soldier and patriot. In this capacity, young Eustis was a pronounced success. An attractive physique, handsome features, polished manners and a fine address combined with a generous disposition, an amiable nature and a cultured mind to commend him both to his preceptor and to his clientele, in the treatment of which, his position led him to participate.

He had outgrown his novitiate in medicine and had become rather a friend and associate than a student, when on April 19, 1775, an express arrived in Boston with the intelligence of the affair at Lexington. When he heard the news, Dr. Warren turned over his patients to young Eustis and galloped away to the scene of action, whither he was followed by his young assistant after the proper visits had been made to his patients. Here Dr. Eustis

had his first military experience in treating the wounded on that historic field.

When it became evident that war was impending, Dr. now General Warren tendered a regimental surgeoncy to Dr. Eustis knowing by personal observation his fitness for the office, and he was appointed Surgeon of the Massachusetts Artillery regiment then at Cambridge. He accompanied the troops to New York and soon thereafter was appointed Hospital Surgeon. He was offered a commission as Lieutenant Colonel of Artillery by General Knox, but declined preferring to continue work along the line of the profession to which he had determined to devote his life.

From 1777 practically to the close of the War Dr. Eustis had charge of a military hospital established in and about the spacious mansion of Colonel Beverly Robinson, a Royalist, on the Hudson River over against West Point. Here also Benedict Arnold had his headquarters at the time of his defection from the American cause, and when he suddenly fled to the enemy, Dr. Eustis was called to care for Madame Arnold who was seized with violent hysterical paroxysms upon learning of her husband's trouble. It was a remarkable coincidence too that Dr. McHenry, then a member of Washington's staff and also afterwards Secretary of War, should have been present on this occasion. The professional services of Dr. Eustis were animated by a genuine interest in his profession as was evident from his declination of the commission as Lieutenant Colonel of Artillery proffered him by General Knox. He remained then in the Medical Department to the close of the Revolution when he was mustered out with the rest of the forces and resumed his practice in Boston.

In 1786 he was conspicuous in opposition to Shays's Rebellion, volunteered his services in the expedition for the capture of Shattuck, one of the insurgent leaders, and acted as Surgeon on the staff of General Lincoln commanding the forces which subdued the insurrection in January, 1787. When in the same year an expedition was projected to defend the frontiers from Indian invasion he also accepted a commission as surgeon to the Massachusetts regiment, in anticipation of appointment to the position

of Surgeon General, but the plan failed to materialize on account of the abandonment of the expedition and the disbandment of the forces, and he again retired to private practice.

About this time he began gradually to occupy himself with public affairs. In 1788, he was chosen a member of the General Court for Boston and repeatedly re-elected until 1794; he was also for two years a member of the Board of Council; from 1800 to 1805 he represented the Suffolk District in Congress, where his services made so favorable an impression that in 1809 he was appointed Secretary of War in the Cabinet of President James Madison, an office which he filled with high credit until after the surrender of Hull in 1813, a period when the stirring events leading up to and inaugurating the Second War with Great Britain rendered it of the highest importance to the budding nation. He was succeeded at the War Department by General John Armstrong of Carlisle, Pennsylvania.

His eminent talents for public affairs, however, were not allowed to be wasted upon his relinquishment of the War portfolio, and in 1814 he was appointed Minister to the Hague, where he served successfully a four years' term. Upon his return to the United States he was elected to Congress from the Norfolk District which he continued to represent for four successive sessions. In 1823 his career was suitably crowned by election as Governor of his Commonwealth, and he died in office at Boston two years later at the ripe age of 72.

#### THE INFLUENCE OF FATIGUE ON MARKSMANSHIP.

**A**FTER some carefully conducted experiments (*Le Caducée*), with sharpshooters, Dr. Benech, of the 20th army corps, arrived at the following conclusions: A well regulated march, with an equipment of twenty kilos, at an average speed of one kilometer in twelve minutes, by trained soldiers, and kept up from one to eight hours, is without any influence whatever on the marksmanship of the men. It is also without perceptible influence on the sensibility of the retina, the duration of retinal impressions, the dynamometric force of the muscles of the forearm and trunk, and on the co-ordination of movements made necessary by the aiming of the piece.

SAMUEL M. DELOFFRE.

## **News of the Services.**

The following officers were elected to membership in the Association of Military Surgeons, to date from January 1, 1905, at the recent ballot of the Executive Council.

### **PUBLIC HEALTH AND MARINE HOSPITAL SERVICE.**

Acting Assistant Surgeon Frederick Barnard Adams.  
Acting Assistant Surgeon E. Alexander.  
Assistant Surgeon Francis Asbury Ashford.  
Acting Assistant Surgeon Charles Williams Bailey.  
Acting Assistant Surgeon Wyatt Barnes.  
Acting Assistant Surgeon Lewis C. Bean.  
Acting Assistant Surgeon Robert Ignatius Bowle.  
Acting Assistant Surgeon Frank Boyd.  
Acting Assistant Surgeon Eugene Henry Bryan.  
Assistant Surgeon John Thomas Burkhalter.  
Passed Assistant Surgeon Tallafiero Clark.  
Acting Assistant Surgeon Frederick Henry Cleaves.  
Acting Assistant Surgeon Alta F. Cook.  
Acting Assistant Surgeon Francis Duffy.  
Acting Assistant Surgeon Joseph C. Elfers.  
Acting Assistant Surgeon Thomas C. Frary.  
Passed Assistant Surgeon Lunsford D. Fricks.  
Surgeon John Godfrey.  
Acting Assistant Surgeon Thomas H. D. Griffiths.  
Acting Assistant Surgeon Fleetwood Gruver.  
Acting Assistant Surgeon Albert L. Gustetter.  
Acting Assistant Surgeon Janvier H. Hamilton.  
Acting Assistant Surgeon Ardon Philo Hammond.  
Acting Assistant Surgeon Benjamin Iverson Hicks.  
Acting Assistant Surgeon Melvin M. Hopkins.  
Acting Assistant Surgeon James Spencer Hough.  
Acting Assistant Surgeon Lea Hume.  
Surgeon Fairfax Irwin.  
Acting Assistant Surgeon Allen Carter Jones.  
Passed Assistant Surgeon John W. Kerr.  
Acting Assistant Surgeon Julius Caesar Koosher.  
Passed Assistant Surgeon William Alfred Korn.  
Acting Assistant Surgeon Samuel D. W. Light.  
Acting Assistant Surgeon William J. Linley.  
Passed Assistant Surgeon Leslie Leon Lumsden.  
Acting Assistant Surgeon Robert Lee McMahon.  
Acting Assistant Surgeon Harrington Marr.  
Acting Assistant Surgeon William Casteln Mason.  
Acting Assistant Surgeon Garland P. Moore.  
Surgeon James Clifford Perry.



Assistant Surgeon Claude Connor Pierce.  
 Acting Assistant Surgeon Stacy A. Ransom.  
 Acting Assistant Surgeon William E. Rice.  
 Acting Assistant Surgeon Charles A. Sheely.  
 Acting Assistant Surgeon John Thomas Shepherd.  
 Acting Assistant Surgeon Henry Cheever Sibree.  
 Assistant Surgeon Frederick C. Smith.  
 Acting Assistant Surgeon Arthur Edward Spohn.  
 Assistant Surgeon Edward Maples Steger.  
 Acting Assistant Surgeon John W. Stevenson.  
 Acting Assistant Surgeon William John Sheaff Stewart.  
 Acting Assistant Surgeon Charles Sidney Stoddard.  
 Acting Assistant Surgeon William C. Todd.  
 Acting Assistant Surgeon Frederick Townsend.  
 Acting Assistant Surgeon Wesley Townsend.  
 Passed Assistant Surgeon Frederick Eugene Trotter.  
 Acting Assistant Surgeon Frederick R. Underwood.  
 Surgeon Eugene Wasdin.  
 Acting Assistant Surgeon William Amasa Weldon.  
 Passed Assistant Surgeon Mark Johnston White.  
 Acting Assistant Surgeon R. C. White.  
 Assistant Surgeon William Martin Wightman.  
 Acting Assistant Surgeon Stacy D. Williamson.  
 Acting Assistant Surgeon Richard Wilson.

U. S. NAVY.

Passed Assistant Surgeon Frederick A. Asserson.  
 Surgeon Charles Perry Bagg.  
 Surgeon John W. Baker.  
 Assistant Surgeon James Lyman Belknap.  
 Surgeon Henry Clay Eckstein.  
 Surgeon James Gaven Field.  
 Passed Assistant Surgeon Will Melville Garton.  
 Assistant Surgeon Charles P. Henry.  
 Acting Assistant Surgeon Harry Weston Judd.  
 Surgeon Cary Devall Langhorne.  
 Assistant Surgeon Norman T. McLean.  
 Surgeon William Martin.  
 Assistant Surgeon Robert H. Michels.  
 Acting Assistant Surgeon Julian Taylor Miller.  
 Assistant Surgeon Owen Joseph Mink.  
 Assistant Surgeon William M. Nickerson.  
 Assistant Surgeon Winfield Scott Pugh, Jr.  
 Assistant Surgeon Perceval S. Rossiter.  
 Assistant Surgeon Harold W. Smith.  
 Surgeon Henry Stewart.  
 Assistant Surgeon Robert Earl Stoops.

U. S. ARMY

Contract Surgeon Ira Alphonso Allen.  
 Contract Surgeon Henry David Brown.  
 Contract Surgeon Leighton R. Cornman.  
 Contract Surgeon James B. Ferguson.  
 Lieutenant Nelson Gopen  
 Major Simon P. Kramer, U.S.V.  
 Contract Surgeon Julian A. Mead.

Contract Surgeon Luke B. Peck.  
 Contract Surgeon Louis G. de Quevedo.  
 Lieutenant Edward P. Rockhill.  
 Contract Surgeon Frank W. Ross.  
 Contract Surgeon Ernest F. Slater.  
 Major Allen Macy Smith.  
 Major William Rudolph Steinmetz.  
 Lieutenant Gideon M. Van Poole.  
 Captain William C. Warmley, U.S.V.  
 Captain Samuel M. Waterhouse.  
 Acting Assistant Surgeon John Henry Willard.  
 Lieutenant Stanley G. Zinke.

## NATIONAL GUARD.

Brigadier General Ernest L. Bell, N.G.N.H.  
 Lieutenant Samuel Charles Gurney, Mich. N.G.  
 Captain Samuel Joseph Kopetzky, N.G.N.Y.  
 Lieutenant John Ray Newcomb, Ind. N.G.  
 Captain J. T. Westermann, N.G.N.Y.

Lieutenant Colonel George W. Adair, U.S.A., granted one month's leave.

Assistant Surgeon W. A. Angwin, U.S.N., ordered from the Naval Medical School to the Naval Academy.

Lieutenant Howard H. Baily, U.S.A., ordered to the Philippines on completion of course at Army Medical School.

Major John M. Banister, U.S.A., assigned to duty at Fort Riley.

Lieutenant C. J. Bartlett, U.S.A., leave of absence extended twenty days and ordered from the Hot Springs General Hospital to Fort Miley.

Assistant Surgeon J. L. Belknap, U.S.N., ordered from the Naval Medical School to the Narragansett Bay Naval Hospital.

P. A. Surgeon F. L. Benton, U.S.N., ordered from the Philadelphia Naval Recruiting Station to the Naval Medical School.

Major H. P. Birmingham, U.S.A., ordered to make medical and sanitary inspections at Forts Clark, Bliss, Sill, Reno and Logan H. Roots; and transferred from the Department of Texas to Fort McPherson, Ga.

P. A. Surgeon L. W. Bishop, U.S.N., commissioned P. A. Surgeon with the rank of Lieutenant, and ordered from the *Southery* to the Naval Medical School.

A. A. Surgeon C. T. Blackburn, U.S.N., ordered from the *Culgoa* to recruiting duty ashore.

P. A. Surgeon E. M. Blackwell, U.S.N., ordered from the *Castein* to the Naval Station, San Juan, P. R.

P. A. Surgeon Rupert Blue, P.H.&M.H.S., ordered from the Plague Laboratory, San Francisco to Norfolk,

Surgeon E. S. Bogert, U.S.N., ordered from the Naval Academy to the *West Virginia*.

P. A. Surgeon B. W. Brown, P.H.&M.H.S., ordered from Evansville to Louisville.

Lieutenant Henry L. Brown, U.S.A., ordered to the Philippines on completion of course at Army Medical School.

P. A. Surgeon C. S. Butler, U.S.N., ordered from the Naval Station San Juan, P. R. to the *Castein*.

Dr. Caspar R. Byars, U.S.A., ordered from Bay City, Texas to Fort Sam Houston.

Major Edward C. Carter, U.S.A., relieved from duty as Commissioner of Health of the Philippine Islands and ordered to return to the United States.

Major William F. Carter, U.S.A., relieved from duty in the Philippines.

Assistant Surgeon R. B. Chapman, U.S.N., ordered from the Naval Medical School to the Mare Island Naval Hospital.

Assistant Surgeon A. B. Clifford, U.S.N., ordered from the Naval Museum of Hygiene and Medical School to the New York Navy Yard.

Assistant Surgeon H. W. Cole, Jr., U.S.N., ordered from the Naval Medical School to the Norfolk Naval Hospital.

Dr. R. King Cole, U.S.A., granted two months leave.

Captain C. G. Collins, U.S.A., relieved from duty in the Philippines.

Surgeon F. J. B. Cordeiro, U.S.N., ordered from the *Solace* home to await orders.

P. A. Surgeon G. M. Corput, P.H.&M.H.S., ordered from the South Atlantic Quarantine Station to New Orleans.

Surgeon R. P. Crandall U.S.N., ordered to the *Hancock*.

Lieutenant Robert M. Culler, U.S.A., ordered to the Philippines on completion of course at Army Medical School.

A. A. Surgeon V. Dabney, U.S.N., ordered from recruiting duty to the *Culgoa*.

Lieutenant William R. Davis, U.S.A., ordered to the Philippines on completion of course at Army Medical School.

Assistant Surgeon P. T. Dessez, U.S.N. ordered from the *Kentucky* to the Norfolk Naval Hospital for treatment.

Medical Director Dwight Dickinson, U.S.N., ordered to the Portsmouth Navy Yard and Naval Hospital.

Medical Inspector S. H. Dickson, U.S.N., ordered from the *Kearsarge* to the *Maine*.

Medical Director N. H. Drake, U.S.N., ordered from the *Hancock* to the Norfolk Navy Yard.

P. A. Surgeon J. M. Eager, P.H.&M.H.S., ordered to duty in the Bureau at Washington.

Lieutenant William R. Eastman, U.S.A., relieved from duty in the Philippines.

Major Guy L. Edie, U.S.A., ordered to proceed to the Philippine Islands and return as Attending Surgeon to the Secretary of War.

Assistant Surgeon W. G. Farwell, U.S.N., ordered from the Naval Medical School to the New York Naval Hospital.

Medical Director W. G. Farwell, U.S.N., ordered from the Portsmouth Naval Hospital to his home preparatory to retirement; retired from active service by reason of the age limit; and ordered to the Philadelphia Naval Recruiting Station.

Surgeon J. G. Field, U.S.N., ordered from the *Bennington* to the *Solace*.

Surgeon H. B. Fitts, U.S.N., ordered from the *Buffalo* to the *Lawton*.

Captain Clyde S. Ford, U.S.A., ordered for duty in connection with the joint Army and Navy exercises.

P. A. Surgeon G. T. Freeman, U.S.N., ordered to the Olongapo Naval Station.

Lieutenant Paul L. Freeman, U.S.A., ordered to the Philippines on completion of course at Army Medical School.

Major E. B. Frick, U.S.A., ordered to take charge of the Chief Surgeon's Office, Department of Dakota, during that officer's absence on leave.

A. A. Surgeon John Frick, P.H.&M.H.S., ordered from Laredo, Tex. to Tampico, Mex.

P. A. Surgeon L. D. Fricks, P.H.&M.H.S., ordered from the New York Immigration Depot to Castries, St. Lucia, W. I.

P. A. Surgeon F. M. Furlong, U.S.N., ordered to special duty in the Bureau of Medicine and Surgery.

Assistant Surgeon D. Cather, U.S.N., ordered from the New York Naval Hospital to the Newport Naval Training Station.

Major William W. Gray, U.S.A., ordered from Fort McPherson to Atlanta, Ga., for duty as Chief Surgeon, Department of the Gulf.

Assistant Surgeon C. T. Grayson, U.S.N., ordered from the Naval Medical School to the Washington Marine Barracks.

Captain Henry S. Greenleaf, U.S.A., ordered for duty in connection with the joint Army and Navy exercises.

Surgeon E. J. Grow, U.S.N., commissioned Surgeon with rank of Lieutenant Commander.

P. A. Surgeon S. B. Grubbs, P.H.&M.H.S., ordered to Chicago.

Surgeon A. G. Grunwell, U.S.N., commissioned Surgeon with rank of Lieutenant Commander.

P. A. Surgeon M. K. Gwyn, P.H.&M.H.S., assigned to command of the South Atlantic Quarantine Station.

Colonel John D. Hall, U.S.A., detailed as Chief Surgeon of the Department of California.

Dr. Joseph B. Hallwood, U.S.A., returned from the World's Fair Grounds to Fort Leavenworth, Kans.

Captain E. H. Hartnett, U.S.A., ordered for duty in connection with the joint Army and Navy exercises.

Lieutenant L. M. Hathaway, U.S.A., granted two months leave upon being relieved from duty in Alaska.

Assistant Surgeon R. G. Heiner, U.S.N., ordered from the Naval Medical School to the Washington Navy Yard.

Medical Inspector L. G. Henneberger, U.S.N., ordered to the Newport Naval Hospital.

Captain Louis T. Hess, U.S.A., relieved from duty in the Philippines.

Colonel John Van Rensselaer Hoff, U.S.A., has been selected by the Secretary of War as military attache with the Russian forces to relieve Colonel Valery Havard who was captured by the Japanese while gallantly standing by his colleague, Captain Judson, at the capture of Harbin.

Assistant Surgeon H. F. Hull, U.S.N., ordered from the Naval Medical School to the U.S.R.S. *Franklin*.

Lieutenant H. G. Humphreys, U.S.A., ordered to the Philippines on completion of course at Army Medical School, and granted one month's leave.

P. A. Surgeon J. H. Iden, U.S.N., ordered from the Narragansett Bay Naval Hospital to the Naval Medical School.

A. A. Surgeon W. H. Janney, U.S.N., detached from the *Cesar* and resignation accepted.

Surgeon M. K. Johnson, U.S.N., ordered from the *Tacoma* to the *Maine*.

Dr. H. Newton Kierulff, U.S.A., ordered from the Presidio to duty on the *Buford*.

Surgeon I. N. Kite, U.S.N., ordered from the *Maine* to the *Kearsarge*.

Major John S. Kulp, U.S.A., ordered to the Philippines.

Surgeon C. D. Langhorne, U.S.N., commissioned Surgeon with rank of Lieutenant Commander.

P. A. Surgeon J. F. Leys, U.S.N., ordered to the Naval Medical School.

Major John Patrick Lombard, Surgeon 9th Regiment, M.V.M., died at Dorchester, Mass., March 21, 1905, aged forty-four.

Surgeon G. P. Lumsden, U.S.N., ordered from the Norfolk Navy Yard to the *Minneapolis*, and thence to the *Olympia*.

Major C. C. McCulloch, Jr., U.S.A., granted one month's leave.

Assistant Surgeon W. N. McDonnell, U.S.N., ordered from the Naval Medical School to the Naval Station Porto Rico and the *Alliance*.

Assistant Surgeon A. J. McLaughlin, P.H.&M H.S., ordered from the Bureau to Naples, Italy

Assistant Surgeon H. T. McLean, U.S.N., ordered from the Naval Medical School to the Chelsea Naval Hospital.

Surgeon G. M. Magruder, P.H.&M.H.S., ordered from Cincinnati to San Francisco.

Captain Clarence J. Manly, U.S.A., granted one month's leave, and ordered from Fort Brady to Fort Yellowstone.

Lieutenant Colonel Louis M. Maus, U.S.A., ordered from Fort Riley to San Antonio, Texas as Chief Surgeon of the Department of Texas.

Assistant Surgeon H. A. May, U.S.N., ordered from the Naval Medical School to the U.S.R.S. *Franklin*.

Major E. A. Mearns, U.S.A., granted three months sick leave.

Lieutenant R. F. Metcalfe, U.S.A., relieved from duty in the Philippines.  
Assistant Surgeon J. Miller, Jr., U.S.N., ordered from the *Buffalo* to the *Lawton*.

Lieutenant Reuben B. Miller, U.S.A., ordered for duty in connection with the joint Army and Navy exercises.

Assistant Surgeon O. J. Mink, U.S.N., ordered from the Naval Medical School to the New York Naval Hospital.

Major Edward R. Morris, U.S.A., relieved from duty in the Philippines.

Captain E. L. Munson, U.S.A., granted a month's leave of absence.

P. A. Surgeon J. A. Murphy, U.S.N., ordered from the Washington Navy Yard to the Naval Medical School.

Assistant Surgeon H. T. Nelson, U.S.N., ordered from the Naval Medical School to the Washington Naval Hospital.

Surgeon O. D. Norton, U.S.N., ordered from the *Olympia* to the *Minnesota*.

P. A. Surgeon K. Ohnesorg, U.S.N., ordered from the *Topeka* to the Naval Medical School.

Lieutenant Leartus J. Owen, U.S.A., ordered to the Philippines on completion of course at Army Medical School.

Assistant Surgeon W. D. Owens, U.S.N., ordered from the Naval Medical School to the Mare Island Naval Hospital.

P. A. Surgeon A. E. Peck, U.S.N., ordered from the *Pensacola* to the *Bennington*.

Dr. Harper Peddicord, U.S.A., granted three months leave.

Assistant Surgeon F. E. Porter, U.S.N., ordered from the Naval Medical School to the Norfolk Naval Hospital.

Dr. Newton A. Probert, U.S.A., ordered to accompany a Battalion of the 30th Infantry from Fort Crook to Fort Des Moines and to return thence to Fort Crook.

Surgeon J. C. Pryor, U.S.N., ordered from the Narragansett Bay Naval Hospital, to the Naval Medical School.

Major Ogden Rafferty, U.S.A., ordered to inspect the Medical Departments of posts in the Artillery District of the Potomac and Baltimore, with a view to determining the requirements at each station participating in the Army and Navy exercises in June next.

Major Henry I. Raymond, U.S.A., assigned to duty at Columbus Barracks.

Lieutenant E. P. Rockhill, U.S.A., granted a month's leave with permission to apply for a month's extension.

Lieutenant Edwin W. Rich, U.S.A., relieved from duty in the Philippines.

Major Gilbert E. Seaman of Milwaukee, Wis., has been promoted to that grade in succession to Major Joseph B. Whiting, Jr., deceased.

A. A. Surgeon F. E. Sellers, U.S.N., ordered home from the Culebra Naval Station.

P. A. Surgeon H. O. Shiffert, U.S.N., commissioned P. A. Surgeon

with the rank of Lieutenant, and ordered from the *Franklin* to the Naval Medical School.

Surgeon E. M. Shipp, U.S.N., ordered from the New York Naval Hospital to the Naval Medical School.

Assistant Surgeon F. M. Shook, U.S.N., appointed Assistant Surgeon with rank of Lieutenant J. G.

Lieutenant E. D. Shortlidge, U.S.A., ordered from Fort Miley to the Hot Springs General Hospital.

Colonel R. G. Silverthorne, McFarland, Kans., has been commissioned as Surgeon General of Kansas.

Surgeon G. T. Smith, U.S.N., ordered to the *Maryland*.

P. A. Surgeon J. J. Snyder, U.S.N., ordered from the *Kearsarge* to the *Tacoma*.

P. A. Surgeon J. Stepp, U.S.N., ordered from the Newport Training Station to the *Topeka*.

P. A. Surgeon W. G. Stimpson, P.H.&M.H.S., ordered from San Francisco to Port Townsend.

Surgeon J. B. Stoner, P.H.&M.H.S., ordered from Norfolk to Evansville.

Assistant Surgeon R. E. Stoops, U.S.N., ordered from the Naval Medical School to the *Pensacola* and the San Francisco Naval Training Station.

Captain Paul F. Straub, U.S.A., ordered from Fort Leavenworth to report to the Secretary of War in person.

Assistant Surgeon H. F. Strine, U.S.N., ordered from the *Helena* to the *Barry*.

Assistant Surgeon C. E. Strite, U.S.N., ordered from the Naval Medical School to the Norfolk Naval Hospital.

P. A. Surgeon Allen Stuart, U.S.N., commissioned P. A. Surgeon with the rank of Lieutenant.

Captain Henry D. Thomason, U.S.A., advanced to rank of Captain.

Assistant Surgeon E. M. Tolfree, U.S.N., ordered from the *Hancock* to examination for promotion at Washington and subsequent waiting orders.

Lieutenant Wilfrid Turnbull, U.S.A., honorably discharged from the service of the United States with one year's pay.

Lieutenant F. M. C. Usher, U.S.A., ordered from Fort Yellowstone to Fort Brady.

Assistant Surgeon E. A. Vickery, U.S.N., ordered from the Naval Medical School to the Portsmouth Navy Yard and the *Southery*.

Lieutenant Frank W. Weed, U.S.A., ordered to the Philippines on completion of course at Army Medical School.

Major George M. Wells, U.S.A., under treatment at the Army and Navy General Hospital at Hot Springs, retired on account of disability.

Medical Director Howard Wells, U.S.N., ordered from the Newport Naval Hospital to the Chelsea Naval Hospital.

Assistant Surgeon L. H. Wheeler, U.S.N., ordered from the Naval Medical School to the Narragansett Bay Naval Hospital.

Lieutenant William A. Wickline, U.S.A., ordered to the Philippines on completion of course at Army Medical School.

Assistant Surgeon C. L. Wicks, U.S.N., ordered from Naval Medical School to the U.S.R.S. *Lancaster*.

P. A. Surgeon C. W. Wille, P.H.&M.H.S., ordered from Baltimore, Md., to the Gulf Quarantine Station.

Surgeon L. L. Williams, P.H.&M.H.S., ordered from Washington to Baltimore.

Captain James S. Wilson, U.S.A., ordered for duty in connection with the joint Army and Navy exercises.

P. A. Surgeon R. L. Wilson, P.H.&M.H.S., relieved from duty at the Hygienic Laboratory and ordered to Vera Cruz, Mexico.

A. A. Surgeon C. K. Winn, U.S.N., ordered from the Norfolk Naval Hospital to the *Cesar*.

Lieutenant Robert N. Winn, U.S.A., granted three months leave.

Dr. Roman Romanovitch de Wredin, who represented the Russian Army at the 1903 meeting of the Association of Military Surgeons of the United States, is Chief Surgeon of the Russian forces in Manchuria.

P. A. Surgeon G. B. Young, P.H.&M.H.S., ordered from Louisville to Chicago, and detailed to represent the Service at the meeting of the Council on Medical Education of the American Medical Association at Chicago.

Assistant Surgeon W. J. Zalesky, U.S.N., ordered from the Naval Medical School to the Naval Academy.

Lieutenant Stanley G. Zinke, U.S.A., ordered to the Philippines on completion of course at Army Medical School.

**ANEMIA IN PORTO RICO.**—The Assembly of Porto Pico has made an appropriation of \$15,000.00 to be devoted to the prosecution of the study of Anemia in that Island, and the tour of duty of Captain Bailey K. Ashford, U.S.A. in Porto Rico has been extended in order to enable him to preside over the Commission engaged in this work.

**COMPANY B, HOSPITAL CORPS, U.S. ARMY,** is represented in the *Army and Navy Register* of March 31st last by two particularly handsome engravings.

**ARMY MEDICAL SCHOOL COMMENCEMENT.**—The seventh annual commencement exercises of the Army Medical School were held on the afternoon of April 11th at the Army Medical Museum in Washington. Colonel Charles L. Heizmann, President of the Faculty presided, and the diplomas were presented by Surgeon General Robert M. O'Reilly. The session has been an exceptionally successful one and this was the first occasion when National Guard officers and Contract Surgeons formed part of the student body. The graduates, in addition to Contract Surgeon Duncan and Lieutenants William A. Wickline and Leartus J. Owen the honor graduates,



were Lieutenants Howard H. Baily, Henry L. Brown, Robert M. Culler, William R. Davis, Paul L. Freeman, Harry G. Humphreys and Stanley G. Zinke of the Army; Major George D. Dulin of Nebraska, Captain Charles D. Colby of Michigan, Captain Clarence T. Cole of Nebraska, Lieutenant Richardson of Ohio; Contract Surgeons Gitner and Bruns of the Army.

**NAVAL MEDICAL SCHOOL COMMENCEMENT.**—The graduating exercises of the Naval Medical School were held on March 25th in the Hall of the National Museum at Washington. Medical Director R. A. Marmion, President of the Faculty presided, and President Roosevelt and Prof. William H. Welch of Johns Hopkins made addresses, while the diplomas were presented by the President of the United States. The names of the graduates appear in the list of assignments to stations.

**NORTH CAROLINA NATIONAL GUARD.**—The following appointments have been made in the Medical Staff of the North Carolina National Guard. Colonel B. R. Hunter, Kings Mountain, Surgeon General; Lieutenant Colonel Charles S. Jordan, Asheville, Deputy Surgeon General; Major A. L. Pendleton, Elizabeth City, Surgeon; Major E. H. Brooks, Reidsville, Surgeon; Major T. H. Holmes, Clinton, Surgeon; Major E. B. Glenn, Asheville, Surgeon; Captain R. A. Winston, Franklinton, Assistant Surgeon; Captain Park M. King, Charlotte, Assistant Surgeon; Captain W. T. Parrott, Kingston, Assistant Surgeon; Lieutenant E. C. Boyle, Mt. Holly, Assistant Surgeon; Lieutenant E. J. Witherspoon, Charlotte, Assistant Surgeon.

**PHILIPPINE ISLANDS MEDICAL ASSOCIATION.**—This association, including among its membership a large proportion of the medical officers of the Army stationed in the Philippines, held its Second Annual Meeting in Manila on the 1st, 2d, 3d and 4th of March. The program contained many valuable and interesting papers, among which may be mentioned the "Control of Tuberculosis" by Colonel D. M. Appel, U.S.A., the "Address in State Medicine" by Major E. C. Carter, U.S.A., the "Military Medical Service in the Philippine Islands" by Major Charles Richard, U.S.A., "Evolution of the Medical Laboratory Work in the Philippines" and the "Metropolitan Police Medical Service" by Drs. R. P. Strong and A. T. Short, late of the United States Army. Major John R. McDill, formerly Surgeon of U.S. Volunteers and now the leading surgeon in civilian practice of Manila, presided.

**NATIONAL FIRST AID SOCIETIES.** Two national first aid associations have been formed within the past month. The first is the White Cross Society, organized in Chicago by Colonel Nicholas Senn, Lieutenant Colonel Charles Adams, and Captain Samuel Cecil Stanton. The second was incorporated in the District of Columbia under the title of the National First Aid Association of America, and has among its charter members Miss Clara Barton, General Nelson A. Miles and Lieutenant Harry H. Hartung. This shows an increasing and active interest in the subject of First Aid, which it is hoped will largely extend a knowledge of the subject throughout the country.

## Current Literature.

### THE NEW ARMY HOSPITAL CORPS DRILL REGULATIONS.\*

**T**HE long awaited revision of the Drill Regulations by Majors Mason, Winter and Reynolds is now being issued to the Service. At first sight one is impressed by the change in shape of the book to a larger 12mo instead of the small 24mo, in which it heretofore appeared. The paper is very thin, which, combined with the shape makes the book most convenient for carrying in the pocket. The points in which these Regulations differ from the preceding issue were given in full by Major Reynolds in the August, 1904, number of the JOURNAL, so that it will be unnecessary to describe them here in detail. An interesting feature of the work is the great increase in the number of illustrations, which is very much to the advantage of the work and of the Service.

### THE EFFECTS OF TROPICAL LIGHT ON WHITE MEN.†

**T**HE study of the topography of the blonde and brunette is a most interesting although hitherto somewhat neglected subject. Major Woodruff with his customary thoroughness has worked out the effects of tropical light upon white men in the handsome monograph under consideration, and presents his studies in a most attractive and interesting form. The work is an invaluable sociological contribution and a most useful medi-

\**Drill Regulations and Outlines of First Aid for the Hospital Corps, U. S. Army. Revised 1904.* 12mo.; pp. 145, with 83 illustrations. Washington, Government Printing Office, 1904.

†*The Effects of Tropical Light on White Men.* By Major CHARLES E. WOODRUFF, M.D., U.S.A. 8vo.; pp. 358. New York, Rebman Co., 1905.

cal research. The book, after discussing the physiology, etiology and results of tropical residence, presents a series of recommendations which may well be accepted by officers and their families, compelled by the vicissitudes of the service, to reside for a time in our tropical possessions.

#### COLOR TESTS FOR BLOOD, URINE, FECES AND MOISTURE.\*

**T**HIS will prove to be a valuable assistant in the matter of the determination of color, which is difficult for the average physician to properly determine. The arrangement and system of determination are novel and effective.

#### THE SURGICAL TREATMENT OF BRIGHT'S DISEASE.†

**T**HIS is a compilation of articles upon the subject published in the various journals by its distinguished author whose work in renal surgery is so well known, followed by the full history of seventy-two cases operated upon by him for chronic Bright's disease up to the end of the year 1903. The book is authoritative and forms a material contribution to surgery.

#### LEGAL MEDICINE.‡

**T**HE subject of legal medicine is one of importance which is steadily increasing with the growth of scientific knowledge. The old adage that there were three grades of liars,—“liars, damned liars and medical experts,” is rapidly growing to be untrue under the spur of scientific knowledge. The work of Dr. Draper embodies the very latest information in legal medicine and will be found most useful in the continued effort to clearly define medical expert testimony.

\**Blood, Urine, Feces and Moisture. A Book of Tests.* By HENRY EMERSON WETHERILL, M.D. 24mo; pp. 32. Philadelphia, George P. Pilling & Son, 1904.

†*The Surgical Treatment of Bright's Disease.* By GEORGE H. EDEBOHLS, M.D., LL.D. 8vo; pp. 327. New York, Frank J. Lisecki, 1904.

‡*A Textbook of Legal Medicine.* By FRANK WINTHROP DRAPER, M.D. 8vo; pp. 573, with about forty illustrations. Philadelphia, New York, London, W. B. Saunders & Co., 1905.

## DIET IN HEALTH AND DISEASE.\*

**T**HIS comprehensive work is laid out upon a broad and practical plan and covers, (1) the chemistry and physiology of digestion, (2) the classes of foods, including beverages, and stimulants, and various factors bearing particularly upon diet, with full consideration of diet in special conditions, including infancy, old age and the puerperium, with a minute discussion of the feeding suitable for special diseases. It discusses the Army and Navy rations, the dietaries of public institutions, presents numerous recipes, and combines to form an invaluable work the need of which has long been felt by the profession.

## A HAND-BOOK OF SURGERY.†

**T**HE author has given us a little work of great merit. It is a brief outline of the principles and practice of surgery, covering the entire field of surgery with in addition articles on Life Insurance, Rape, Microscopy and on many other subjects of importance to the surgeon. As a ready reference book for hurried use it is simply invaluable and we believe as such it will prove of great value to the busy physician.—A. R. ALLEN.

## ESSENTIALS OF THE PRACTICE OF MEDICINE.‡

**T**HE progress of medical science has rendered a new work upon Practice an essential among question compends for some years, and students will no doubt welcome with pleasure the appearance of this up to date outline of the subject which takes the place in the series occupied hitherto by the work of Dr. Henry Morris.

\**Diet in Health and Disease.* By JULIUS FRIEDENWALD, M.D. and JOHN RUHRAH, M.D. 8vo: pp. 689. Philadelphia, New York and London, W.B. Saunders & Co., 1904.

†*A Hand-Book of Surgery.* For Students and Practitioners. By FREDERICK R. GRIFFITH, M.D. 12mo: 579 pages, 417 illustrations. Philadelphia, New York, London, W. B. Saunders & Co., 1904.

‡*Essentials of the Practice of Medicine.* Prepared especially for students of medicine. By WILLIAM R. WILLIAMS, M.D. 12mo: pp. 461. Philadelphia and London, W. B. Saunders & Co., 1905.

## Original Memoirs.

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AUTHORS ALONE ARE RESPONSIBLE FOR THE OPINIONS  
EXPRESSED IN THEIR CONTRIBUTIONS.

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### THE TREATMENT OF ABDOMINAL INJURIES WITH SPECIAL REFERENCE TO GUNSHOT WOUNDS OF THE LIVER.

By COLONEL JOHN E. SUMMERS, JR.

OMAHA, NEBRASKA.

FORMERLY SURGEON GENERAL OF NEBRASKA; SOMETIME ACTING  
ASSISTANT SURGEON IN THE UNITED STATES ARMY.

THE practice of military surgeons in garrison or camp should be the same as that of surgeons in civil life regarding the treatment of abdominal traumatism. When it comes to the treatment of such injuries during or after battle, I take it that the surgeon on the spot capable of doing creditable modern surgery is the one to decide in individual cases whether or no the circumstances admit of doing accurate reparative work. There can be no argument beyond this. Reports from modern wars, and more especially the one now raging in Manchuria, prove that the military rifle of to-day, firing a hard small bullet at a very high velocity does the least possible damage to intra-abdominal organs and therefore lessens the dangers of such traumatisms, viz,—those from hemorrhage and septic peritonitis. General William H. Forwood, U. S. Army, Retired, my preceptor, says (Dennis' System of Surgery), "Laparotomy for gunshot wounds of the abdominal viscera, unlike many other operations in military surgery will always be greatly restricted in its applications and usefulness by the very exacting conditions necessary to success. Wounds of the viscera do not admit of delay. There is no way to prevent sepsis as in external wounds. The time that may

elapse before an operation must be done is limited from three to five hours, after which the chances of success diminish very rapidly. The operation must be done at the hospital, in a warm quiet room protected from wind and dust, with good lights, competent assistants, plenty of time and the advantage of the strictest antiseptic precautions. Very exceptional qualifications are demanded of the surgeon. None but those having skill and special training in this line and who have had considerable experience at least on the cadaver, and living animals should dare undertake it. The mortality in laparotomy for gunshot and stab wounds of the intestines done by inexperienced operators will be much greater than that under the expectant plan of treatment. Except in siege operations, the hospitals will very rarely be established in time to offer the benefit of this operation to those wounded in the early part of the engagement. Very few of the severely wounded will be able to reach the hospital under ordinary circumstances within five hours after the receipt of their injuries. Men with penetrating wounds of the abdomen suffer from shock and hemorrhage, and often have to remain for a time on the field, and they usually have to be carried long distances on litters. Such cases are brought to the hospital in the evening or during the night when the difficulty of operation is increased by want of proper light, or more frequently not until the following day when it is too late. An operator with requisite skill and experience will rarely be available, and when there are many wounded, the services of two or three of the best surgeons for an hour or two of precious time can seldom be given the doubtful benefit of one among a number of men urgently needing assistance. Battles result in defeat as well as in victory on one side or the other and among the wounded prisoners the benefit of laparotomy will hardly be realized, although some ante-mortem abdominal sections may be made by well meaning surgeons with more zeal than discretion. On the whole the outlook for future operative interference in cases of penetrating wounds of the viscera on the battle field is not very promising. But still there will be exceptional cases and especially favorable circumstances where this procedure may become practicable."

General Forwood's opinion is all the more sound to-day because the experiences of late go to prove that many recoveries have followed perforating wounds of the abdomen made by the modern military rifle bullet, when the injured are treated upon the expectant plan. These cases would almost certainly have died had they been operated upon under the difficulties of aseptic surgical work in the field. Pistol shot wounds and stab wounds of military and civil practice vary only in degree, those of the service weapons being more destructive than those commonly met with in civil life.

In garrison life the results of all surgical work in the treatment of traumatisms excel those obtained by the civil surgeon. The discipline existing and the sound physical make-up of the enlisted man is in striking contrast with the often unnecessary delays and deteriorated constitutions of the many injured among civilians. There is only one way to make a diagnosis as to the exact extent and nature of an intra-abdominal injury from either contusion or penetration and that is palpation and vision through an abdominal incision.

Of course there are certain well defined symptoms strongly pointing towards the injury of an intra-abdominal viscus following a contusion of the abdomen or a supposedly penetrating or perforating wound of the abdominal walls. But it *is* true, that the golden period for successful surgical treatment may be lost in waiting for classical symptoms. My own experience has so forcibly impressed me with this fact that I now never wait an unnecessary hour before opening the abdomen. I want to *know*. It would be presumptuous to waste your time in asking you to listen to repetitions of the well known methods of diagnosis of intra-abdominal injuries, they are worth so much or so little as they apply to an individual case. Neither would it be profitable to detail the usually considered best methods of repair, but I *am* going to ask your indulgence in listening to several of my experiences and the deductions drawn from them. Before doing this let me briefly tabulate my individual cases and I wish to emphasize the fact that the diagnosis was confirmed in each with but few exceptions either by operation or post mortem examination. It composes in all thirty-five cases, divided as follows—

## CONTUSED WOUNDS.

Rupture of kidney—7; operations 4; died 1 (not operated).

Rupture of liver—1.

Rupture of bladder—1; operation, died.

Rupture of intestines—3; operation 1; died 3.

Acute intestinal obstruction—2; operations 2; recovery 2.

Aneurism of abdominal aorta—1; died 1.

## GUNSHOT WOUNDS.

Stomach, large and small intestines—1; operation 1, died.

Stomach and liver—1; operation, died.

Sigmoid flexure—1; operation, died.

Small intestines—2; operations 2; died 2, (operations done by colleagues with my advice and assistance).

Peritoneum, intestines escaping—1; operation, recovery.

Heart, liver, colon and jejunum—1; died.

Lung, liver, small bowel, postperitoneal at ligament of Treitz—1; died.

Posterior and anterior walls of second portion of duodenum, gall bladder—1; operation; died.

Lung, diaphragm, liver and spleen—1; operation; recovery.

Liver—2; operations 2; died 1; recovery 1.

Liver and kidney—2; operations 2; died 2.

Kidney—1; operation; recovery.

## SHOT GUN WOUNDS.

Large and small intestines—1; died.

Kidney—1; recovered.

## STAB WOUNDS.

Colon and mesentery—1; operation; recovery.

Liver and large cut in right iliac region with protrusion of caecum and ileum and wound of the mesentery; operation, recovery.

Stomach, anterior wall; died,

In studying these tables one is immediately struck with the relatively few simple cases as compared with the complicated ones. Again the high mortality is apparent. Most of the fatal cases were operated prior to ten years ago. Although it is always to be expected that death may follow simple perforating injuries of the hollow viscera, how much more likely is a fatal termination to be awaited when the injuries are complicated by the involvement of other viscera. Hemorrhage and infection are the dangers in the order named. Shock itself rarely kills, when it does the injury is usually so extensive as to suppress all function. Only one of my patients died in less than twenty-four hours. This



one, a woman, died more from hemorrhage than shock. A 38-caliber bullet had badly lacerated the stomach and bowels and when the abdomen was opened three hours after the shooting it was found that so much blood had already been lost that the termination depended more upon the difficulties of the control of the bleeding than the repair of the wounded viscera.

Of the seven ruptures of the kidney, one died, this latter was not operated. One nephrectomy was done. In one of two cases drained by retroperitoneal incisions, a preliminary abdominal section was made, the symptoms indicating peritoneal infection. In one case both kidneys were ruptured. Rupture of the kidney is a very common accident and is usually recognized by shock, localized pain and the passage of bloody urine. A localized tumor will not form if the rupture occurs directly through the peritoneal investment into the peritoneal cavity. If the rupture occurs so that the blood accumulates in the loose cellular tissue surrounding the kidney, a tumor forms rapidly, presenting first in the posterior ileo-costal space, enlarging downwards, forwards and inwards. Urine may also extravasate in the same directions and even towards the surface. When a kidney is so lacerated that the hemorrhage accumulates in its pelvis the tumor is especially small and forms slowly, perhaps requiring several days before it can be detected. In such cases either the amount of blood in the urine is rather excessive or because of a blocking of the ureter by clots, little or no blood is found in the urine. When the ureter is blocked or injured so as to prevent the escape of bloody urine into the bladder, the tumor may enlarge quite rapidly, being similar in its action to an acute hydronephrosis. The writer has found the Harris instrument and Kelly cystoscope and ureteral catheters of great value in determining the source of a hematuria, as well as the functional integrity of both kidneys. The other cases were of no special interest, except the fatal one; in this upon post mortem examination; the right kidney was found torn from its moorings, anchored only by its ureter.

The treatment of rupture of the kidney should be operation if the symptoms indicate excessive laceration, intra-abdominal hemorrhage or infection. Usually every condition can be met

through a retroperitoneal incision. If indicated there should be no hesitation in opening the abdomen through a lateral anterior incision.

In the cases of ruptured bladder and the three cases of rupture of the intestine, procrastination robbed the victims of a chance of recovery. I refused to operate upon two of the latter.

The traumatic aneurism of the abdominal aorta is the most unique case of my experience. A boy ten years old, ran against a taut heavy wire stretched between two posts, the impact was between the umbilicus and the ensiform cartilage. The little fellow although much shocked and vomiting managed to walk home, some little distance. Reaction was slow. When I saw him fifty-five hours after the injury, the pulse was 150, temperature (rectal) 99°F. Some abdominal distention with muscular rigidity most marked upon the right side. Diagnosis, rupture of the intestine, and at that time inoperable. Eight hours later the pulse had fallen to 120, so I concluded that the rupture was incomplete and that ice locally and opium internally were indicated. I did not see the case again but four days later the child died, developing towards the last, cold blue lower extremities and a very high temperature. The post mortem examination disclosed intestines intact but a traumatic aneurism about the middle of the abdominal aorta, adult fist sized.

The gunshot stomach wounds were all complicated by other visceral injuries. One involving both curvatures of the stomach and the liver, the direction of the injury being from below upwards, lived two weeks dying from abscesses of the liver. It is almost impossible for a gunshot wound of either the stomach or duodenum, which perforates both walls, to be limited to those organs; therefore under such circumstances, in addition to the repair of any intraperitoneal organs involved, proper incisions must be made to provide for the retroperitoneal drainage.

The case involving the heart (apex), liver and bowels, should have been operated, the man lived twenty-six hours, dying from peritonitis and a damaged heart. I am now confident that the injuries could have been repaired with at least a prevention of the peritonitis. I got ready to operate and then backed out.

The very unfavorable case of wounds of the lung, diaphragm, liver and spleen was operated successfully, proving that it is the duty of the surgeon to operate in desperate cases, but he must act early, otherwise operations tend to bring surgery into disrepute. I am of the opinion that formerly the bad prognosis in gunshot wounds of the spleen was justified, because of the necessary or unnecessary delays. Nowadays except during active field operations, the prognosis ought to be favorable when *early* operation is done. The mattress suture and the tampon will control bleeding; the removal of the organ is only indicated by very extensive laceration—the experimentally successful combined crushing and suturing method of Senn strikes me favorably.

When the posterior wall of the fixed portion of the duodenum is ruptured, cut or perforated by a bullet, as in one of my cases, there is only one rational method of repair. The injured gut wall should be exposed by a reversal of the foetal rotation of the intestine from left to right. The peritoneum is divided in front of the kidney parallel to and outside of the descending portion of the duodenum and the fingers introduced behind the duodenum which is then readily freed from the loose cellular tissue and rotated from right to left—the cellular tissue is the fused right meso-duodenum and the primitive parietal peritoneum. By this manipulation the posterior wall of the descending portion of the duodenum can be easily exposed and rotated into the abdominal incision. It may be better also to occlude the pylorus and do a gastro-enterostomy.

The cases of stab wound do not offer anything of especial interest except the one involving the liver—the one of the stomach was not seen until the third day, too late for operation. The post mortem disclosed a clean cut, one-fourth inch through the anterior stomach wall—an easy and safe case for early operation. Although many of my cases are extremely interesting I will desist from further comment. Let me briefly discuss the management of wounds of the liver. In all I have treated nine people suffering with either wounds of the liver alone or the same complicated by wounds of other organs. Because of its size, position, fixation and tissue structure, the liver is more frequently contused than

any other intra-abdominal organ, and next to the intestines the most frequently injured by penetrating abdominal wounds. There is practically only one danger from a wound of the liver and that is hemorrhage. The fear of peritonitis and cholæmia are only secondary. If hemorrhage be controlled by art or nature, any accumulation of bile can be taken care of by the peritoneum or surgically removed. Normal bile is sterile. As Schlatter says (*Beiträge zur Klinischen Chirurgie*, Band xv, Heft ii), the danger of the escape of bile into the peritoneum is not from bacteria, but from toxemia due to the absorption of bile products. The statistical tables of Mayer based upon 267 cases gives a general mortality of 59 per cent. By rupture—86.6 per cent; gunshot wounds—34.4 per cent; stabs and cuts—56.5 per cent. Edler out of his 546 collected cases gives a general mortality of 66.8 per cent: ruptures—85.7 per cent; gunshot wounds—55 per cent; stabs and cuts—64.6 per cent.

A study of Edler's tables shows that out of 162 cases of rupture of the liver (of this number the history as to time of death being in forty-six uncertain), twelve died immediately; twenty-five within the first few hours; thirty-two within twenty-four hours. Out of forty-eight fatal gunshot wounds (excluding six histories inaccurate) seventeen died within twenty-four hours. Out of forty fatal stab and incised wounds (seven histories inaccurate) fourteen died within twenty-four hours. Excepting the complicated cases, these early deaths can only be attributed to hemorrhage. Abscess of the liver is a late complication following wounds, as was seen in my case of death two weeks after a wound involving both curvatures of the stomach and liver, the stomach wounds healed yet the patient, a boy, died from multiple abscess of the liver. Several theories are advanced as to the cause of this infection, the most plausible being that the portal blood contains much germ laden chyme from the stomach and intestines. In health the function of the liver is to take care of this chyme; in lessened resistance resulting from trauma, infection may take place—a *locus minoris resistentiae* having developed.

The indications for treating all wounds of the liver must be the immediate control of hemorrhage, by suture or tampon and

the repair of any injuries to the gall tracts. Whenever this is practicable it prevents early death from hemorrhage and later death from bile absorption or liver abscesses. I early became impressed with the fact that operation which might not admit of suture of the wounds would do more harm than good.

In two cases I operated some hours after the shooting, patients in fair condition. In each, although there was found much blood in the abdomen, the hemorrhage seemed to have almost ceased. The manipulation of the removal of the blood, attempts at suturing and use of the tampon brought on a renewal of the active bleeding—I have always thought that these patients might have recovered had they *not* been operated. So I would say that in the absence of the expectation of complications and in the presence of a good pulse which holds its own, it may be unwise to operate if the wound in the liver seemed probably difficult to suture. Under all other circumstances I would operate immediately if practicable. By using a sand bag or a specially made hard round pillow—the inflatable kidney bag of Edebohl's is too wabby—a free incision through the right rectus will admit of such an exposure of both surfaces of the liver so as to do most any kind of reparative work. The needle used should be well curved and round and the suturing material large, plain, sterile catgut introduced deep either as an interrupted stitch, or as a mattress suture. These will not tear the liver if introduced well back from the wound edges and tied without tension.

About thirty of my cases of intra-abdominal injuries were treated in the Clarkson Hospital, Omaha, where there is an active emergency service and of which I have had control for many years.

**SLEEPING SICKNESS IN AFRICA.**—In 1904, Professor Lortet declares, the sleeping sickness, caused by the trypanosoma inoculated by the tsetse fly, killed more than 400,000 natives between Lake Nyanza and the Congo. If this parasite continues its ravages, the center of Africa will be entirely depopulated in a few years, as is feared by several English medical explorers.—**SAMUEL M. DELOFFRE.**

## HERNIA IN THE ITALIAN ARMY.

By COLONEL PIETRO IMBRIACO,

MEDICAL DIRECTOR OF THE EIGHTH ARMY CORPS OF THE  
ROYAL ITALIAN ARMY.

THE great importance that hernia has ever had in military practice, has induced me to make this short communication, in order to make known the statistics with regard to the radical operation for hernia in the Italian military hospitals.

The radical cure of visceral hernia enters largely not only into civil surgical practice, but also into military. Asepsis and antisepsis have by their brilliant success eliminated the medico-legal question, relating to the compatibility of this affection with the military service.

The first operations in the Italian Army for the radical cure of abdominal hernia were done in 1892. In that year, the cases operated upon were 14; following that time, they increased yearly until they reached the number of 454 at the end of 1897, with only two deaths,—one for shock after the operation and the other for a complication of erisypelas.

From 1898 to 1903 the radical operations increased on a larger scale, as appears by the following table:

YEAR.	KIND OF HERNIA.			TOTAL.	CURED.	DEATHS.
	Inguinal.	Umbilical	Crural.			
1898	312	2	6	320	320	
1899	392	2	6	400	400	
1900	435	3	9	447	445	2
1901	435	3	10	448	447	1
1902	624	3	9	636	634	2
1903	576	6	11	593	592	1
Total.	2774	19	51	2844	2838	6

Of the 2774 inguinal hernias, 111 were bilaterals, 32 recurrences, 11 strangulations.

Two deaths occurred in consequence of strangulated hernia and 4 directly from the operation for radical cure, which with the two of the preceding six years, in over 3298 operated upon, represent only eighteen per cent. This proportion, certainly very small, together with similar results in other hernias, shows that in the young soldiers the conditions favorable to the good issue of the operation are greater than in the civil population, which includes people of all ages, of all the social classes, and, what is yet more important, of persons affected with hernia of all kinds and degrees. If, in fact, we consult the statistics of Port, the most numerous at the present, we notice that in over 23,519 radical operations, we had ninety per cent. of mortality.

As to the recurrences, it is not easy to determine exactly the number, because the soldiers operated upon, being sent on furlough, nearly all escape later investigations.

In any case, it is without doubt that the recurrences do not exceed the proportion of two or three per cent. The number of 32 recurrences in 2844 cases operated upon in the Italian military hospitals from 1898 to 1903, would give the rate of 1.12 per cent., but this is not precise, because many new operations were performed for recurrence, and because a good many recurrences take place in the second year after the operation or later, when the greater part of these soldiers are no more in service.

It is also useful to mention that the 3298 operated upon (including the 454 from 1892 to 1897) correspond to the number of 216,000 soldiers and also that the number of soldiers already in service discharged for hernia has been gradually lessening from 710 in 1895 to 389 in 1900. Notwithstanding, the quantity of young men that the Italian army is annually losing, who are not admitted, or who are discharged for an illness, from which they could be easily freed, is quite considerable. If to the 450 discharged yearly, we would add the exempted recruits, who numbered 4930 from 1898 to 1903, one will see that the Italian Army loses yearly more than 5000 soldiers from hernia. And this inconvenience is nearly the same in the other armies, because the practice upon this point, substantially agrees, it being everywhere admitted that well developed, and more or less large

visceral hernia is not compatible with the active military service.

The Italian Surgeons generally use the Bassini method more or less modified, and only exceptionally they use that of Kocher or others. The surgeon of the army naturally follows the custom of other surgeons and in over 3399 operations for the radical cure of inguinal hernia, (including 111 cases of bilateral hernia) only in a very few cases did they resort to other methods than that of Bassini.

It would be useless to enter here into details of the operation. It is enough to say that the process of the eminent Italian surgeon,—who, as you know, had in view to reconstruct the inguinal canal as it is physiologically in oblique direction, below and in front,—for simplicity of technic, for ease of application to all kinds of inguinal hernia and for the splendid results obtained in comparison with other processes, has been selected not only in Italy but in many other countries. Coley reports 917 operations with this process and only ten recurrences.

Among the many proposed modifications of the process of Bassini one, I think to be very rational and deserving of mention, consists in not putting the aponeurosis transversalis of Cooper in the tissues to be sutured in the posterior part of the crural arch when as happens in recent hernias, it is not very weak or taken out from its natural position; in these cases it is sufficient to suture to the margin called the double muscular stratum formed by the small oblique and the transversalis muscles. Major-Surgeon Baldanza, who since 1894 has adopted this modification, reports 215 cases operated by him and other military surgeons in this manner with only four recurrences. We have no doubt that with this modification the operation is quicker and more simple and in case of an eventual infection of the wound in the cutis, the process of suppuration can not so easily affect the interior parts.

I think it also useful to mention that for many years, in the Italian military hospitals, in place of general anesthesia, we have used the local application of cocaine according to the method of Rechis-Ceci, which consists in having a prior hypodermic injection of cloridhrate of morphine and fifteen minutes thereafter in-



serting in the same place many deep injections of cocaine solution.

This process is not new in medical military practice. I remember that in the Congress at Moscow of 1897, Corvin and Vicol referred to about 200 cases of inguinal hernia operated upon in the military hospital of Jassy (Roumania) of which the anesthesia with cocaine was used in 188. In the military hospital of Florence from 1899 to 1903, there were performed 79 radical operations for hernia, of which three were crural, under cocaine anesthesia without any trouble.

It is unnecessary to mention the advantages, especially in military surgery of this process in place of the chloroform in cases of recent hernia, perfectly free, whose sack can be easily isolated from the surrounding tissues.

The rachi-cocainization of Bier-Tuffier, has also been used. The military surgeon Caccia, who has employed it many times in the military hospital of Alexandria, reports fourteen cases of inguinal hernia, of which five were bilateral, well treated in this way. But this method has not generally spread in civil practice and therefore also not much used in military work, at least in Italy.

With this, I come right to the military medico-legal question. Certainly, in view of the new complete immunity of the radical operation for visceral hernia, the thousands and thousands of exemptions from the military service for this disease ought to disappear as also the discharges for disability, which although not so numerous, represent a large proportion of yearly losses in armies.

In the first place, civil society can provide by law, for operation upon people affected by hernia, in order to be freed from a dangerous disease which limits the power of work and which is considered a humiliating imperfection. Military law can also exercise a large influence, it being well known that many young men do not ask to be operated upon, in order to avoid the military service.

What could we do to avoid the loss by discharging the disabled ones?

The most efficient measure would be to oblige all the soldiers affected with hernia to be subjected to the radical operation. This measure would also have in its favor the merit of giving to the army and to all human society, men in good state and health, and able to work; the deaths caused by the operation are very few and there are reasons to hope that same will disappear. But can society oblige one to have an operation performed, even if this operation is not dangerous? No, and this is the great difficulty for the solution of the problem.

The question was presented by Demosthen to the International Congress of Rome in 1894 and afterwards was discussed by Delorme, Chauvel, Wissemans, Link, Corvin and Vicoli and lately by our General Dr. Randone of the Italian army, but no proposition in my opinion, would eliminate or improve the inconvenience.

Dr. Randone thinks that we could induce the soldiers affected by hernia, to subject themselves more frequently to the radical cure, applying in all cases of hernia the provisions relating to pensions in case of failure of operation or of worse conditions. I have not great faith in this measure which throws too much responsibility upon the doctor and then it would also be essential to do the same for other important but not strictly necessary operations.

I certainly hope it will not be difficult to have a progressive diminution of discharges for this disease, if the soldiers affected will think that it is better in their interest to suffer the operation instead of having the sword of Damocles over their heads.

Notwithstanding, a reform in the law to render easier the acceptance of the operation would be highly profitable. I think that the best way would be to use less rigor in exemption from military service of recruits affected by hernia and on the contrary more readiness in retaining soldiers in service. If everywhere would be adopted the principle of some armies to consider discharge from the military service only in young recruits affected with double hernia or a big hernia not easy to reduce and to keep so; and if soldiers with hernia would be without exception judged in the same way as the graduates of the Italian army, I think

that on the one and losing the hope of obtaining a discharged from the service and on the other the hope of not being discharged on the part of those who desire to continue in the service, would largely increase the number of the soldiers, who would of themselves ask for the radical operation. In Italy the greater proportion of the radical cures occurs in case of soldiers who wish to remain in the service and could not continue in it, for this illness.

Allow me, before finishing, to say a few words regarding another question also involving military legal medicine.

When is visceral hernia to be regarded as depending upon the service?

Rigorously only the hernia, due to strain, would be retained as incurred in service; and in some armies this idea prevails. But it is unnecessary to demonstrate that the formation of a true traumatic hernia from strain, that is, developing only under the influence of elevated abdominal pressure in a violent and quick manner, without predisposition to hernia is so rare that the possibility is not admitted by the majority of anatomists and surgeons.

But is all this rigor just? Is it in conformity with the present ideas of the pathogenesis of visceral hernia? I think not.

If a soldier in service falling from a horse reports a light contusion on the knee and after this traumatism there develops in this articulation, a tubercular "osteo-arthritis" for which he must subject himself to the resection of the knee or the amputation of the leg, who could doubt that the illness of this unfortunate soldier, was incurred in the line of duty notwithstanding the predisposition to tuberculosis and the fact that the trauma could have been only the indirect cause of the illness? Then why must another opinion be adopted for hernia?

Kocher has condensed in the following formula, the essential conditions why hernia can constitute a reason for indemnification of damages to the working men and laborers: "Recent hernia which follows immediately an unfortunate at work or that is derived from a most extraordinary strain during the work, and accompanied in both cases by a severe pain." In my opinion the

same criterion should guide the military surgeon in regard to the cause of hernia incurred in the service.

In conclusion, I believe that:

1. It is desirable to provide additional medico-legal provisions to favor the wider extension of the operation for radical cure of hernia in military service.

2. These provisions should be directed toward rendering more difficult and infrequent the exemption of recruits from service on account of hernia.

3. In determining the question of whether an acquired hernia was incurred in the line of duty or not, the same criterion should be applied as with civilian surgeons in case of a workman.

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#### SPINAL ANESTHESIA WITH TROPACOCAINE AND ITS EMPLOYMENT IN SURGERY IN WAR.

THE following conclusions were reached by Dr. F. Caccia (*Archives de médecine et de pharmacie militaires*):

- (1) This procedure can be used without danger, even with 0.06 centigram. of tropacocaine hydrochlorate, if the necessary precautions are taken. Patients who have taken both general anesthesia and spinal anesthesia always prefer the latter when another operation is necessary.
- (2) The anesthesia extends as high as the umbilicus, sometimes up to the axilla: it is complete around the rectum and anus.
- (3) The technique is very simple, but necessitates some experience.
- (4) The solution of tropacocaine is more efficacious when its temperature is raised to 40 or 45 degrees.
- (5) Tropacocaine retains its properties for about a month, even though it has been boiled six or seven times. After a month it loses its analgesic properties, and becomes very poisonous.
- (6) Spinal anesthesia is a precious innovation in time of war; it admits of an economy of personnel, time and money. It may be used without danger even in weak cases or when there is intense shock.

—SAMUEL M. DELOFFRE.

## PULMONARY TUBERCULOSIS: ITS DIAGNOSIS AND COURSE UNDER FAVORABLE CLIMATIC CONDITIONS.

By EDWARD D. SINKS, M. D.,  
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AT FORT BAYARD, NEW MEXICO.

**D**URING my service at the Army Sanatorium at Fort Bayard, I observed so many patients among those who came to this plateau in search of health, whose trouble had been diagnosed as chronic bronchitis, catarrh or asthma, and in consequence their pulmonary lesions had so far advanced that recovery was either impossible or very difficult, that I have come to the conclusion, that not enough care is exercised in the early diagnosis.

A proper diagnosis at the earliest stage of the disease is very necessary, in order that the patient may at that time adopt such a course of living and take such precautions as are necessary for a recovery. I deem it my duty, therefore, to give to the profession such facts as I have obtained from my experience at Fort Bayard, in the diagnosis, treatment and progress of the disease in its different forms and stages.

The early recognition of the disease would be simple if the absence of tubercle bacilli was diagnostic of the absence of the disease; but as such is not the case, it becomes necessary to come to a conclusion by signs and symptoms alone.

It is impossible to obtain a correct family history in all cases, but in the class of patients treated at Fort Bayard, (officers and enlisted men of the army and navy) there seems to be no reason for concealing the fact that parents or relatives have died from consumption. In about two per cent there is a history of either parent having died of the disease, and about four per cent of either uncle or aunt. The conclusion drawn from these facts is

that heredity has little or nothing to do with liability for developing the disease, and as the tubercle bacilli are recognized to be the cause, it is therefore more probable that it is contracted; that the mode and condition of living are, after all, the real factors, as no one seems to be immune.

The resisting power is lessened under certain unfavorable conditions and it is at this time that the disease is contracted. Conditions favoring loss of resistance are principally: previously having had some disease of an enervating character, crowded, close living, absence of sunlight and fresh air, and living in damp, moist climates.

The four varieties of the disease spoken of in this article are: miliary, caseous, fibro-caseous and fibroid, the classification depending upon the degree of activity of the morbid changes.

Miliary tuberculosis is in the great majority of cases caused by the breaking down of an old lesion which has been incapsulated, thus causing reinfection and a very rapid extension of the disease, as it is shown that in such cases recent tubercles are found in a part of the lung which was previously free from infection.

The symptoms may be either gradual or sudden, and are, as a rule, those which precede an acute febrile disease; that is, loss of appetite, headache, malaise or hemorrhage may be the first indication the patient has that trouble exists. Dyspnoea is noticed from the first, and as the case advances becomes more marked, respiration reaching as high as sixty a minute. The lips and finger tips become cyanotic, varying in degree as to the extent of lung tissue involved. The temperature is usually high and irregular, and may present the inverse variety. The pulse is feeble and very rapid; albumen is almost invariably present in the urine.

If the lesion is old and extensive it will not be difficult to recognize, but in cases in which the disease has become arrested and the lesion small, a slight increase in vocal fremitus and diminished expansion at one apex may be all that can be discovered. The percussion note may be normal or slightly impaired. On auscultation expiration may be prolonged and harsh rales, bubbling in character accompanied by sibilant rhonchi.

In miliary tuberculosis as a terminating cause of a chronic infection, the signs may be few in the previously unaffected portion of the lung. The prognosis is extremely unfavorable, and such cases are benefitted very little, if any, by climatic changes.

Caseous tuberculosis of the lungs presents the broncho-pneumonic type, in which the disease is scattered throughout the lung, and the lobar type, in which it is confined to one lobe. The onset may be sudden or insidious; when insidious there is anorexia, cough, slight pyrexia, pains in the limbs and gradual loss of weight and strength. Hemoptysis is often the first symptom noticed, but in a comparatively short time the general symptoms become well marked. There is high fever, a hectic flush on the cheeks, chills and night sweats, the skin is hot and dry, and emaciation is very rapid, an evidence that the disease is extending rapidly throughout the lungs. The sputum becomes more profuse and changes from mucoid to purulent, blood stained and often of greenish color. The pulse is quickened and respiration becomes more rapid. At this time tubercle bacilli are almost invariably found in the sputum, especially in that which presents a greenish tinge. The temperature is high and irregular.

In the lobar variety there is usually a period of impaired health, though it may first become manifest by a severe chill and rigor, followed by pain in the side; the attack in this respect resembles pneumonia. There is high fever, cough, 'rusty' expectoration and marked dyspnoea. The physical signs are usually first noticed at the apices, loss of resonance on percussion accompanied by crepitation. Frequently, however, the first signs are rales, diffuse over both lungs, at first bubbling and then becoming metallic. Tubular breathing is not always heard at first as the exudate fills the bronchi, but when the area becomes completely consolidated breathing is typical tubular, bronchophony well marked; in fact, so much so that care should be taken to distinguish it from cavity formation. Again, as the consolidated area breaks down large, moist and bubbling rales are present; it is at this stage that a cavity usually forms and may be detected by amphoric breathing, whispered pectoriloquy, and the so-called cracked-pot sound on percussion. If the cavity is dry no rales

are heard, but if moist, rales of a large bubbling character are present. A pleuritic friction rub is usually present, and signs, i. e., dullness on percussion and absence of breath sounds, may reveal an effusion.

The lobar variety is oftentimes mistaken for pneumonia, and suspicion is aroused only by absence of crisis. This form of the disease is not so fatal as is supposed. Hemorrhage is not frequent, though I have seen three cases die as a result of haemoptysis.

Fibroid tuberculosis is always insidious in onset, never acute. It is in this form of the disease we find fibroid changes at post-mortem, there being no history of the illness other than perhaps a slight cough, very little or no expectoration, some loss of weight and a slight fever, the latter not being constant. Hemorrhage is frequent and may be profuse, but quickly recovered from and work resumed without any inconvenience. I have one case under observation at the present time, in which hemorrhage occurred at intervals for four years, but no other symptoms were noticeable at the time. It is now twelve years since the last hemorrhage occurred and the patient is at present in perfect health. There is, however, marked evidence of fibroid changes at both apices. As the lesion increases in extent, the result is that more of the lung tissue becomes emphysematous and the patient suffers from dyspnoea and may have attacks of asthma. These symptoms should always suggest the presence of the disease.

The cough is seldom severe and usually occurs in the morning. It is not paroxysmal nor does it cause vomiting. Night sweats rarely, if ever, occur. There is absence of diarrhoea and the sputum is, as a rule, free from tubercle bacilli for long periods, or they may never be found.

Upon physical examination some retraction of the supra- and infra-clavicular regions with defective expansion may be detected. If, however, emphysema has developed around the lesion, retraction will not be noticed. The resonance on percussion is slightly defective or may indicate the presence of emphysema. The breath sounds are usually feeble, and expiration is prolonged and fine crackling râles, which may be mistaken for pleuritic friction



rubs, are often found. The râles may be widely distributed throughout the lungs. If a cavity exists, it is usually dry.

In the fibro-caseous or chronic form of the disease, the mode of onset varies a great deal; the most common, however, is insidious, and the patient is unable to state when he first became sick, and will probably date it back to a cold or an attack of la grippe, and has had since that time some cough and expectoration, gradual loss of weight and strength, frequent night sweats, nausea and vomiting after meals, cheeks flushed and a slight afternoon temperature.

When the onset is haemoptoic there are, as a rule, no previous symptoms, the patient feels perfectly strong and well until he has a hemorrhage, which may be small or large, quickly recovered from, however, and work resumed. In a short time he has another hemorrhage, and this may be repeated without any of the usual physical signs of the disease being detected, but sooner or later the usual symptoms and signs will become manifest. In cases of this kind the process has, in all probability, gone on for some time, either very slowly, or an old lesion, which has previously existed without the patient having ever felt its effects, has suddenly become slightly active. Cases in which pleurisy is the first symptom noticed, are quite common. The usual signs of pleurisy are found, and frequently an effusion. The usual symptoms of cough, expectoration, night sweats and emaciation are present or quickly follow the pleuritic attack. While the mode of onset is different the early symptoms are practically the same and have been described. Cough is the earliest and most lasting of all symptoms. It is usually at first dry and hacking. Soon, however, some sputum is raised, though not constant, but usually in the morning and after drinking hot liquids. When the disease advances, the cough at times becomes paroxysmal and causes vomiting. The character of the sputum is at first glairy clear thick mucous, but in a short time it becomes dotted with little yellow or greenish nodules. With the advancement of softening or clearing the sputum becomes more purulent until finally it is altogether purulent, except when mixed with saliva, or contains streaks of blood. Respiration is increased in

proportion to the amount of lung tissue involved, and dyspnoea is present to some extent. Loss of appetite at times is one of the most noticeable features and signs of gastric catarrh are usually present at the onset of the disease. Diarrhoea is more common in the latter stages, though a tendency to constipation is met with in some cases. Vomiting usually follows paroxysms of coughing and occurs more frequently after meals. The physical signs vary, of course, in the early and later stages the signs of infiltration are, upon inspection, diminished expansion of the affected side, clavicles more prominent and the supra- and infra-clavicular spaces sunken.

*Percussion.*—In the very early stages no difference will be noticed in the percussion note, but as the disease advances it becomes dull.

*Auscultation.*—The breath sounds under the right clavicle are usually bronchial and is sometimes mistaken for cavities when no lesion exists. The sounds are usually harsher and more feeble than normal, expiration is prolonged and rales are absent. As the area becomes more profusely infiltrated, breath sounds become more harsh, higher pitched, and a few fine rales are heard at the end of inspiration. As the lesion softens the rales are more persistent and become bubbling in character, and the breath sounds more high pitched and bronchial, vocal resonance is increased and bronchophony present. The process of softening, if not arrested, forms a cavity and is detected by the following signs: Expansion is diminished on the affected side, the supra-clavicular and supra-spinous fossae sunken and the chest flattened; vocal fremitus is greatly increased, both anteriorly and posteriorly; the percussion note may be high pitched or tympanitic. If the cavity is near the surface and of large size the so-called cracked pot sound may be present. On auscultation the breath sounds are cavernous, expiration being lower pitched and more hollow than inspiration and pectoriloquy pronounced.

The following table of cases comprises those treated within the year ending July 1, 1903. The improved cases are those which show a decrease in extent of tissue involved: Those cases

in which the disease has simply become arrested are classed as unimproved:

No. of cases treated during the year .....	506	
No. of cases in Hospital June 30, 1902.....	150	
No. of readmitted cases .....	356	
No. of cases discharged improved .....	157	
No. of cases discharged unimproved .....	73	
No. of cases remaining improved .....	124	
No. of cases remaining unimproved.....	89	
Total No. improved.....	281	55.53%
Total No. unimproved.....	167	32.02%

Of 356 new and readmitted cases during the year there were:

Discharged improved .....	84
Discharged unimproved.....	50
Remaining improved.....	95
Remaining unimproved .....	75
Total improved.....	179
Total unimproved.....	125

Of 150 cases in Hospital June 30th, there were:

Discharged improved .....	73
Discharged unimproved.....	23
Remaining improved.....	29
Remaining unimproved .....	14
Total improved.....	102
Total unimproved.....	37

Cases now in Hospital .....

No. showing improvement.....	213
No. not showing improvement.....	124
Total showing improvement.....	89
	58%

*Case 1.* Mar. 14, 1902. Age 23. Family history, negative. Past history—Diseases of childhood. Always well till January, 1902, when he spit up blood, followed by a severe hemorrhage. For two or three months previous to this, had a slight cough. Normal weight, 130 pounds. Present weight, 112 pounds. Lungs, anterior increase of tactile fremitus over the right lung above nipple line. Increased density over upper lobe of left lung. Few rales over right lung above third rib. Few rales over left lung above second ribs. Remainder of lungs clear. Posterior increase of tactile fremitus both bases.—Numerous moist crepitant rales over right lung above sixth dorsal vertebra. Few rales over left lung above fourth dorsal vertebra. Sputum, positive for tubercle bacilli.

Nov. 14, 1902. No physical signs of disease. Sputum—very few tubercle bacilli after three examinations.

May 5, 1903. Only very slight evidence of any former trouble in either lung. Sputum—negative for tubercle bacilli after ten examinations.

*Case 2.* April 4, 1901. Age 42. Family history, negative. Past history—always well till he contracted a cold in 1900 in China. In December, 1900, began to have pains in chest, followed by night sweats and blood stained sputum. Normal weight, 150 pounds. Present weight, 124 pounds. Lungs—consolidation of right upper lobe. Infiltrated remainder of right lung and left apex. Sputum—tubercle bacilli.

Oct. 4, 1901. Weight, 130 pounds. Lungs—Right lung consolidated above third rib. Cavity in apex internally. Right base consolidated. Dry, fibrous, infiltrated remainder both lungs. Slight activity in left upper lobe. Sputum—tubercle bacilli.

Aug. 18, 1903. Weight, 123 pounds. Lungs—dry cavity right apex. Slight infiltrated remainder right lung. Few dry rales in left apex. Sputum—tubercle bacilli in moderate number.

*Case 3.* June 16, 1903. Age, 26. Family history, negative. Past history—Caught a severe cold in November, 1902, and began to cough and expectorate. Frequent afternoon fever, followed by pains in right side and loss of weight and strength. January, 1903, breath became short on exertion. February, 1903, had four profuse hemorrhages, and since then frequent blood stained sputum. No night sweats. Normal weight, 185 pounds. Present weight, 138 pounds. Lungs—few rales below fourth rib in right axillary line. Lower lobe of left side infiltrated. Sputum—negative for tubercle bacilli.

Aug. 18, 1903. Weight, 165 pounds. Lungs—few moist râles left lower lobe. Sputum—negative for tubercle bacilli

*Case 4.* Nov. 13 1903. Age, 25. Family history, negative. Past history—Always well till Oct., 1901, when he had frequent painful mucous discharges from bowels while at Manila, P. I., and have continued to date. In January, 1903, caught a severe cold. Cough began in February, 1903, and has been constant to date. Pains in chest followed in May, 1902, and expectoration in July, 1902, to date. Has had no night sweats, blood stained sputum or hemorrhages. Slight loss of weight. Normal weight, 140 pounds. Present weight, 127 pounds. Lungs—infiltrated right upper and middle lobes and left upper lobe. Sputum—purulent; moderate tubercle bacilli.

Aug. 20, 1903. Weight, 133 pounds. Lungs—slight infiltration left upper lobe. Few dry rales right upper and middle lobes. Sputum—tubercle bacilli.

*Case 5.* July 6, 1902. Age, 34. Family history, negative. Past history—always well until March 12, 1902, when he was taken sick with fever and pains in left chest. Normal weight, 144 pounds. Present weight, 133 pounds. Lungs—Infiltrated entire left lung; more active in upper lobe. Sputum—purulent; moderate number of tubercle bacilli.

Jan. 7, 1903. Weight, 147 pounds. Lungs—Infiltrated left upper lobe posterior. Moist rales right apex. Sputum—moderate number tubercle bacilli.

June 19, 1903. Weight, 150 pounds. Lungs—Infiltrated left upper lobe. Dry rales in left upper lobe. Sputum—tubercle bacilli.

*Case 6.* May 23, 1901. Age, 26. Family history, negative. Past history—malaria in 1898. Contracted cold with slight cough in fall of 1900, followed by expectoration. Pains in chest began in February, 1901. Occasional blood stained sputum and night sweats. Normal weight, 165 pounds. Present weight, 145 pounds. Lungs—slight infiltrated right apex and left lower lobe anterior. Sputum—few tubercle bacilli.

Nov. 22, 1902. Weight, 157. Lungs—Rough respiration left apex. No other physical signs. Sputum—negative for tubercle bacilli.

Aug. 17, 1903. Weight, 156 pounds. Lungs—Few fine rales posterior level second dorsal vertebra right. Sputum—negative for tubercle bacilli.

*Case 7.* Jan. 5, 1903. Age, 43. Family history, unknown. Past history—typhoid fever in 1883. Pneumonia of right lung in 1888. Malaria Oct. 1898, after return from Cuba. Pleurisy in left side Aug. 1900. Diarrhoea for six months in Philippine Islands, from December, 1901. Began to cough and expectorate in October, 1902. No fever, night sweats, no hemorrhages. Normal weight, 136 pounds. Present weight, 110 pounds. Lungs—Infiltrated both apices. Sputum—few tubercle bacilli, after three examinations.

July 8, 1903. Weight, 130 pounds. Lungs—Infiltrated left side anterior apex to fourth rib. Right apex anterior but little involved except at level third rib, anterior axillary line, where active infiltration is found. Sputum—moderate number tubercle bacilli.

*Case 8.* April 19, 1903. Age, 26. Family history, negative. Past history—Dysentery began in March, 1900, at G—(duration 1½ years). Appendicitis in July, 1901. June, 1902, began to have headache, pains in left chest, fever, cough, expectoration and night sweats, with rapid loss of weight and strength. Profuse hemorrhage, Feb. 1903. Since then frequent pains in left chest and occasional blood stained sputum. Normal weight, 145 pounds. Present weight, 126 pounds. Lungs—Consolidation in right apex. Infiltrated right lung, except lower part anterior. Infiltrated left upper lobe. Sputum—few tubercle bacilli.

July 7, 1903. Weight, 128 pounds. Lungs—Infiltrated right upper lobe and left lower lobe. Sputum—few tubercle bacilli.

*Case 9.* Jan. 1, 1903. Age, 24. Family history, negative. Past history—Always well till July, 1901, when he had a slight hemorrhage, followed by night sweats. Since then has had a slight irregular cough and expectoration, occasional pains in left side, blood stained sputum and loss of weight and strength. Normal weight, 165 pounds. Present weight, 140 pounds. Lungs—Infiltrated left lung above second rib. Sputum—tubercle bacilli.

July 3, 1903. Weight, 142 pounds. Lungs—No abnormal respiratory signs. Sputum—tubercle bacilli negative.

*Case 10.* Jan. 15, 1902. Age, 33. Family history, negative. Past history—Always well till August, 1901, when he caught cold, and has had constant cough and expectoration since. Had night sweats but no hemorrhages. Weight not given. Lungs—Consolidated left lobe above third rib. Small cavity in internal apex. Cogwheel respiration in left lower lobe. Sputum—tubercle bacilli.

July, 1902. Weight 112 pounds. Lungs—Activity confined to left upper lobe. Partial consolidated right lobe above second rib. Sputum—tubercle bacilli.

Jan. 17, 1903. Weight, 109 pounds. Lungs—Infiltrated above second rib and fifth dorsal vertebra both sides. Sputum—tubercle bacilli.

July 17, 1903. Weight, 118 pounds. Lungs—Consolidated left apex to third rib. Small area infiltrated in right upper anterior level second rib inner side. Consolidation is apparently undergoing fibrous changes. Sputum—tubercle bacilli.

*Case 11.* Dec. 16, 1902. Age, 42. Family history, negative. Past history—Had chills and fever in Cuba in July, 1898. Had dysentery for one year 1899, in the Philippine Islands. Caught severe cold in December, 1900. Since then has had constant cough, expectoration, night sweats, pains in chest and hemorrhages. Normal weight, 155 pounds. Present weight, 136 pounds. Lungs—Incomplete consolidation in right upper lobe. Complete consolidation with possible cavity in middle lobe. Sputum—purulent; few tubercle bacilli.

June 9, 1903. Weight, 143 pounds. Lungs—Cavernous breathing and pectoriloquy with coarse rales in left infra-clavicular region. Dullness in left axillary region with coarse rales. Increase tactile fremitus upper part of right lung. Posteriorly both apices dull. Percussion note higher pitched right side level dorsal vertebræ and few rales at level seventh rib. Process does not seem active. Sputum—very few tubercle bacilli after eight examinations.

*Case 12.* Jan. 27, 1901. Age, 25. Family history, negative. Past history—Had malaria in Cuba from 1898 to date. Had a Hemorrhage in 1900. Since then constant cough and fever, more hemorrhages, some night sweats and loss of weight. Normal weight, 147 pounds. Lungs—Slightly active infiltrated both apices. Sputum -negative.

July 22, 1901. Pulmonary condition unchanged.

Jan. 23, 1902. Pulmonary condition unchanged.

July 11, 1903. Few dry rales both apices. Sputum—no expectoration. Weight, 136 pounds.

In the foregoing report of the course of twelve cases I have endeavored to select those which show gradual as well as rapid

improvement, and those with slight lesions as well as extensive involvement of lung tissue. It will be noticed that only two cases show a very marked increase in weight, that the rest have remained about the same or have gained but slightly, which latter is most noticeable. If, at the end of three months the patient has gained say—twenty pounds, his examination will probably show that he has lost at least ten pounds of that gained at the end of six months. But instead of the muscles being soft and flabby they will have become hard and firm. The skin will become soft and near its normal color, and in every way will it be proven that the state of general nutrition is improved. As to the course of the disease, upon the patient first having arrived in this altitude it is usually as follows, of course, varying as to the extent and activity of the lesion:

The patient usually takes to his bed; temperature subnormal in the morning, ranging from  $101^{\circ}$  to  $103^{\circ}$  in the afternoon, pulse and respiration quickened, the latter reaching as high as forty per minute and the former 140. Patient complains of headache, loss of appetite, inability to sleep, shortness of breath, night sweats and some pain in the legs and lumbar muscles. This reaction lasts from one week to two months; the first change for the better being a decrease in the afternoon temperature, absence of night sweats, and an improvement in the appetite. The heart and respiration seek the normal and the patient gains strength and some in weight. This reaction is in all probability due to an increased activity on the part of the tubercular lesion, and is so marked that patients reaching us, who present very few physical signs of the disease, are reexamined at the end of ten days, at which time it is comparatively easy to locate and map out the infected area.

It is at this period that the patients lose courage and leave for their homes without giving themselves a chance to become acclimated. It would be well, therefore, to warn all those who are to seek health upon the Rocky Mountain plateau of that which they should expect, until they become acclimated.

Too many come with the idea and advice that two or three months will be sufficient to restore them to health, and at the

expiration of that time will be able to return to their homes in the East and resume their occupations. Such advice is not just to the patient, as most of those coming here have discovered for themselves. On the other hand, they should be advised that a climatic cure is not a matter of a few weeks or months, but of a year or even more, and that they will not feel well and strong in a few days but should come with the idea of making this plateau their home for the time being.

The mode of living should be that of absolute quiet and rest. It is the practice of many to advise their patients to "rough it," live on a ranch, to spend several hours each day in the saddle and to take long walks. When such a life is led it is only a question of a few months until the patient is beyond all hope of recovery or even improvement.

When the case is running a temperature, has loss of appetite, increased respiration and heart's action, it should be regarded as acute, and treated accordingly. And in the course of time when the fever subsides, appetite and some strength regained, then let the patient get out of bed and take some exercise; not too much, however, and above all, not in the saddle. But let him walk a short distance each morning and evening—say one mile in all, and then it will be found that the case will improve, and in some instances, clear up a large area in a very short time (Case 3).

As to the ranch life in the West, it is about as rough and uninviting to the sick as any mode of life could be. Ranches depend almost entirely on that which is shipped in for supplies; therefore, the food is nearly all canned, and it is next to impossible to secure eggs and milk. It is a cause to wonder that ranches which boast of hundreds of heads of cattle have no milch cows with which to supply the table with milk and butter.

Those suffering with pulmonary tuberculosis should come to this country with the idea of living in town or city and being in the open air as much as possible. The best and cheapest way to live is in a tent, stretched over a frame with the sides screened and the floor raised about three feet from the ground. In this way perfect ventilation can be secured. If the wind is blowing, the flap of the tent on that side can be let down, and the screens will protect the patient from the annoyances of flies and insects.



If a tent is not desired, a room should be secured which opens on to a porch, the bed placed on the porch and the patient sleep outside. The only time spent in the room either by day or night, should be in dressing or bathing; the rest of the time should always be in the open air, either in bed or lounging or for the short morning or evening walks. This mode of living should be practiced in winter and summer, weather permitting.

The food should be of the most simple and nutritious, milk and eggs forming the principal diet. The eggs should be taken raw, and can be made palatable by the use of salt and pepper with a little lemon juice squeezed over them, or, if the patient desires a little sherry wine poured over the eggs will answer the purpose. In this way, eight to twelve can be taken in a day with great benefit. Milk should be taken in large quantities, but care should be taken by the physician in charge to see that it is properly digested.

The treatment is systematic. In advanced cases it will be necessary to stimulate the heart at intervals. Nitroglycerine seems to be that which has given the most satisfaction at Fort Bayard, especially in the most severe cases. Those in whom the heart's action is good should never under any circumstances indulge in alcohol, other than the small amount taken with eggs. It has been my experience that those abstaining from its use progress more satisfactorily.

Cough is one of the most constant and troublesome of all symptoms, and is the most difficult with which to deal. It should not be stopped entirely by the use of opiates but should be regulated, if possible, by such remedies as we have.

A glass of hot milk or water will often prove efficient, especially at night when the cough is dry and hacking. Codeine is of great value, but it should be used with caution, as the habit is easily acquired. The following formula will be found very beneficial:

Codeine Sulph. ....	1.9
Acid Hydrochlor. dil.....	30.
Spts. Chloroform.....	15.
Syrup Simp. ....	120.
Aqua q.s. ad.....	180.
M. Sig. 4 c.c. as indicated.	

Heroin is by far the most valuable of all expectorants, and a dose given at night will allow the patient to sleep well and in the morning raise the sputum with great ease. It is sometimes possible to secure specimens of sputum which contain tubercle bacilli in cases which have previously proven negative, by the administration of heroin. I have several cases under observation at present, in whose sputum tubercle bacilli are absent unless heroin is used. The following formula is used at Fort Bayard:

Heroin .....	.324
Acid Hydrochlor. dil.....	15.
Spirits of Chloroform.....	30.
Syrup Simp. ....	120.
Aqua q.s. ad.....	180.
M. Sig. 4 c.c. at night.	

The above formula is also useful in paroxysmal coughing, and if given at once will prevent vomiting. If, however, vomiting has started, small doses of cerium oxalate and carbolic acid, the latter freely diluted, will often prove efficient.

The appetite is best stimulated by the use of tincture nucis vom., dil. hydrochloric acid and tinct. gentian comp.

Pleurisy is always present at some time during the disease, and should always be carefully watched so that effusion, in case it occurs, may be at once detected.

Strapping the side, painting with C. C. Iodine and hot applications will often give relief. If, however, the pain is still severe after the use of the above, it will be necessary to give opium in some form. The patient should not be allowed to leave his bed, but should continue to sleep out of doors during the pleuritic attack. If there is effusion, tapping should at once be resorted to, and if the case is found to be one of empyema rib resection should at once be performed. It is not necessary to remove sections of two or three ribs, removal of about two inches of one is sufficient, and free drainage can be established and maintained. Potassium permanganate 1-1000, used warm for irrigation has given excellent results at this hospital, and should be used at least once each twenty-four hours.

Hemorrhage is usually easily controlled by the use of morph. sulph. .016 and atropine sulph. .001 hypodermically, the patient

lying flat on his back, the head low and an ice pack on the chest. Ergotine given in tablet form every four hours, as long as the sputum contains bright red blood is indicated. The fluid extract of ergot frequently causes nausea and vomiting, and should never be given on that account.

Night sweats are troublesome and hard to control in advanced cases, but in those with a small area of involvement, though the lesion may be active atropine sulph. .001 given either by mouth or subcutaneously will check and eventually control them. Camphoric acid .324 every four hours for two or three days is beneficial.

The temperature in tuberculosis varies as to the extent and character of the lesion, that of the miliary variety being highest and lowest in chronic fibroid. If a chart is kept it will be found that it will be characteristic of that variety of infection from which the patient is suffering. Those running a temperature should never under any circumstances leave their bed, but should, however, continue to remain out of doors.

Ice baths are never indicated in pulmonary tuberculosis, but alcohol rubs and sponge baths should be used when the temperature reaches 103° or more. Phenacetine and caffeine citrate exert a very marked influence over the fever, and should be given every four hours. Its prolonged use, will, however, cause sweating, which can be checked by the use of atropine.

In this report it has been my object to point out, as briefly as possible, the diagnostic features of the disease in its earlier stages and to show the course in this climate; also to show the mode of life which should be followed in order to obtain any beneficial results, and to emphasize the fact that the disease cannot only be arrested but cured, if proper care is taken by the patient.

## FRACTURE OF THE HEAD OF THE RADIUS.

By CHARLES EDWARD BANKS, M.D.

SURGEON IN THE PUBLIC HEALTH AND MARINE  
HOSPITAL SERVICE.

A CASE of unusual rarity in fractures occurred at the Marine Hospital, Chicago. J. N., the surgical nurse, while "skylarking" in the kitchen stumbled and fell, striking on his left open palm which he had thrust out to save himself. He received the full weight of his body upon that arm which soon began to swell and pained him severely about the elbow. Examination shortly after the accident revealed crepitus at the joint, the radial head not turning in the complete arc on rotation. Extension and flexion were limited. The radius rotated as far up as could be felt under the layer of muscles. A diagnosis of fracture of the head of the radius was made tentatively. The literature of the subject showed it to be one of great rarity and the results of treatment unsatisfactory. This fracture was the result of indirect violence, plus muscular contraction. With two fixed points, the palm and the trochlear surface of the humerus, the radius was acted upon by the biceps in sudden contraction when the man endeavored to arrest his fall, and the power was thus applied between fulcrum and lever. In addition to this the head was comminuted by the direct blow. The location of the fracture as brought out by the x-rays is shown on the following page.

The arm was dressed in the semi-flexed position, between supination and pronation, and passive motion begun early. An almost perfect result followed. There is complete extension and flexion and only a small portion of the arc of pronation and supination not capable of its function.



**Skiagraph of Surgeon Banks' Case of Fracture of the  
Head of the Radius.**

THE UNITED STATES NAVAL HOSPITAL SHIP,  
*RELIEF*, WITH SOME NOTES ON  
HOSPITAL SHIPS.

By WILLIAM C. BRAISTED, M.D., PH.B.,  
SURGEON IN THE UNITED STATES NAVY.

IT was planned some time ago by the Surgeon General of the United States Navy to equip a hospital ship for the service. The *Relief*, a ship used by the Army during the late Spanish War was selected and work has been in progress for some time looking to her final commissioning for the purposes of a Naval Hospital Ship. The work so far undertaken and completed may be of interest. Concerning the history of this special ship, it is to be noted that the *Relief* was originally built by the John Roach Ship Building Co. She was built in 1896 at Chester, Pa., and was first used as a coast-wise passenger and cargo steamer running along the New England Coast. The *Relief* is a schooner-rigged steamer, with steel hull, propelled by a single screw, with powerful triple expansion engines, which should give her a speed of sixteen knots, easily. Her length over all is 314 feet, with a free board of 12 feet from the water line to the main deck. Her displacement is 3,400 tons; her coal capacity about 700 tons, giving a possible steaming radius of 3,500 miles. The ship is provided with water-tight bulkheads at frames Nos. 11, 51, 95, and 137 as shown in the plans of the ship.

She has three decks that can be utilized for hospital purposes: a lower deck, a main deck, and an upper deck, with a hurricane deck that gives room for promenade, storage of boats and an infectious pavilion.

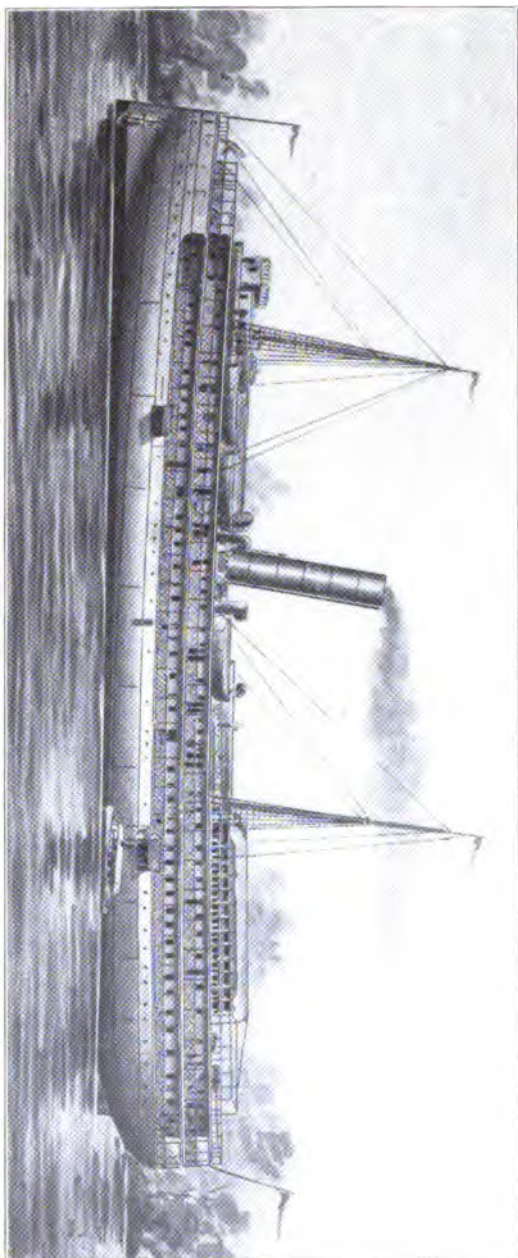
During the Spanish War this vessel was fitted out by the Army as a hospital ship, remaining in the Army service until November 13, 1902, when she was placed out of commission at the Mare Island Navy Yard, and was left in this condition until

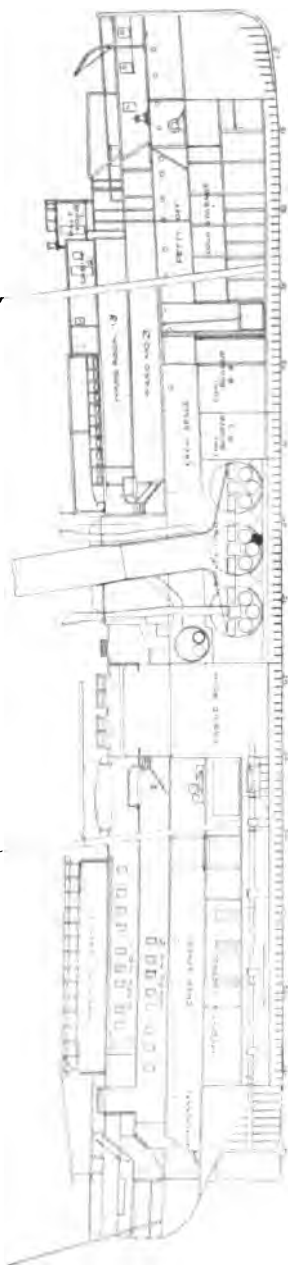
the present work of refitting her for the Navy was commenced last Spring. Much deterioration had naturally taken place, and the demands of the Navy with its special conditions called for a complete remodelling of the ship on somewhat different lines. About the only things remaining of her former outfit is the ice-plant and the so-called standee bunks.

The ship has been completely renovated, surfaces scraped, painted and renewed, and the space divided as follows:

THE ORLOP DECK space contains, forward, large cold storage rooms capable of holding fresh provisions for two to three

United States Naval Hospital Ship "Relief."





Median Sectional Plan.

months. Aft on this deck are capacious and well ventilated store rooms for medical and other stores. One of the medical store rooms is entirely fitted with bottle racks capable of holding 5,000 bottles. Here also are fine commissary, engineer, equipment, etc., etc., store rooms. Farther aft are store rooms for the effects of the sick (clothing, hammocks, etc.) after being disinfected, also a large trunk-room for the effects of sick officers.

The engine and fire-rooms are amidships, and are cool, roomy and well ventilated.

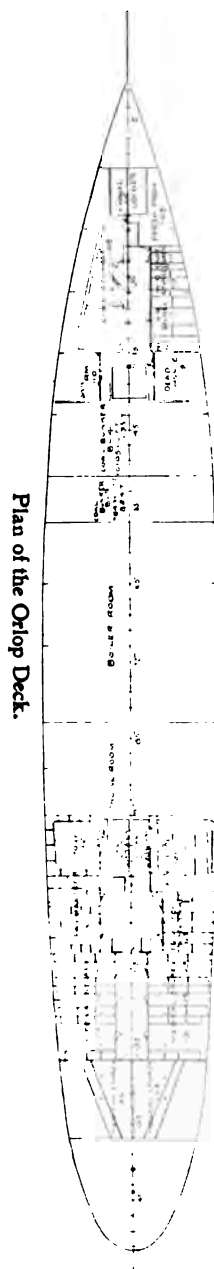
THE LOWER DECK has, forward in the bow, a space for berthing the crew, with closets, baths and showers for them. Aft of this space, and separated by a steel compartment, are the ice machines, two in number. These machines are of the "ammonia type," with an estimated capacity of two to three tons per diem. These machines also cool the cold storage rooms on the deck below, already mentioned. The cold storage rooms are fitted with modern appliances for the refrigeration and preservation of perishable foods,—meats, vegetables, etc. The compartments are so piped that one room or all can be used as desired. The usual lead lining of meat rooms, with non-absorbing surfaces and carefully constructed walls and doors, would seem to promise an efficient and satisfactory

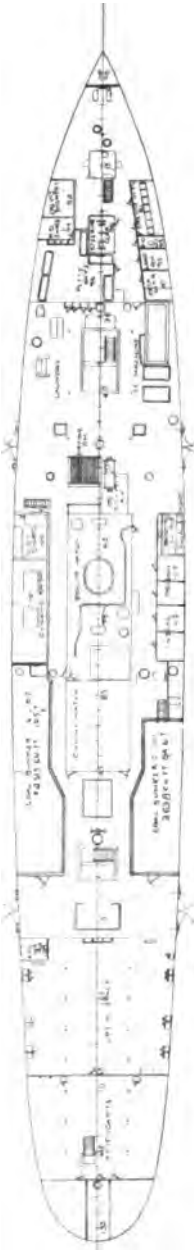


cold storage. The double engine of the ice-plant will allow the machine to run day and night if necessary. On the starboard side of this lower deck has been installed a large laundry, with steam wringers, mangles and washers, also drying racks, capable of washing for 200 or more patients. In connection with this plant is a steel disinfecting chamber fitted with the largest size Kny-Scheerer convertible steam and formaldehyde disinfecter. The chamber is air-tight and the disinfected material comes through the autoclave into the laundry, at a convenient place for washing if necessary.

About midships, on the starboard side of this deck, is a large, airy dynamo room, with work shop attached. The electric plant is composed of two dynamos of 137 amperes and 110 volts each. This, it is thought, will furnish abundant power for all purposes requiring electricity, such as lights, heating electric stoves for warming food, heating water, etc.; running of motors in the operating room, for cauteries and general electric therapeutic purposes. In addition to this the plant is expected to furnish the usual supply needed for running the ship proper, outside of hospital needs. An abundance of lights, carefully wired and insulated, have been installed, lighting up the whole ship, including the holds and store rooms. The wards are well lighted, and portable electric lamps will give light for bedside work when needed. The operating room is especially richly provided with lamps, so that plenty of light overhead and from the sides can be obtained.

Opposite the dynamo room and on the port side are padded cells for the care of insane patients. These cells are well ventilated and





Plan of the Lower Deck.

will greatly aid in the care of this class of patients so hard to manage at sea. At the same time these cells are so far removed from the wards, that any noise emanating from them will not disturb the patients in the wards proper.

Further aft on this lower deck, is a generous berthing space for the crew, with messing tables, ship's library and lockers, and aft of this crew space, but separated by a tight compartment, is a space for forty junior male nurses, or hospital apprentices, with a ladder leading to their closets and baths. This enables the junior hospital apprentices to be kept from the crew proper—messing and sleeping by themselves.

THE SECOND or MAIN DECK has, forward, a large ward capable of accommodating fifty-six patients, and to be known as the Convalescent Ward. This ward and all others, except the ward for infectious diseases, is fitted with single and double standee bunks; a capacious bath room and wash room with adjoining closets; a large linen room; a small dressing room fitted with table and usual appliances of a dressing room, also a warming and serving room for proper distribution of food; a small state room for the head nurse, in order that he may at all times be in close touch with the patients, maintain order and direct the ward. A small refrigerator is placed in this ward as in each ward, for the use of patients, and a long table in the center of the ward with chairs, will give these convalescents a place to read and write. This ward has an air space of 14,985 cubic feet, with 267 cubic feet per man. All these spaces are high above the water line, fitted with small windows in place of port-holes, and with an abundance of fresh air and light.

A small ward of twelve bunks is situated just abaft this ward, on the starboard side, for the accommodation of sick warrant officers, with an adjoining mess room, neatly fitted up and very comfortable; on the port side are baths and closets for this group of patients.

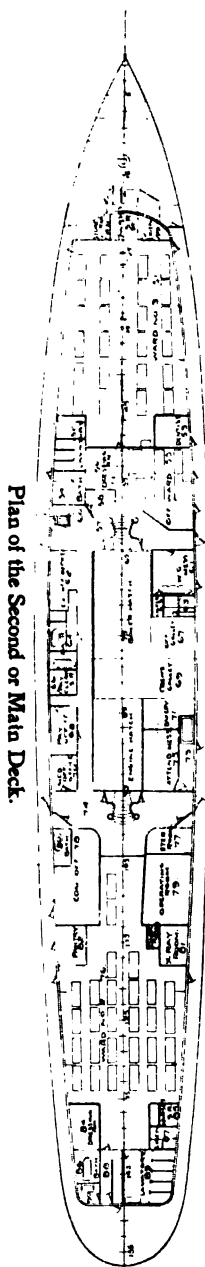
Amidships on this deck, on the port side, are the offices of the Executive Officer, the Paymaster, and the Medical Officer of the Day. The officer of the day's office will contain the medical records, hospital tickets, casepapers, and blank forms peculiar to the Navy, for carrying on the strictly official medical work. There will be a clerk and typewriter in this office for this work.

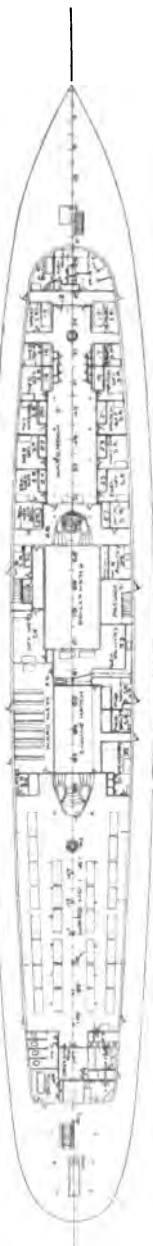
On the starboard side of this deck amidships, are the galleys and bake rooms, with tiled floors and fitted with ranges, bakers, boilers, and all the equipment of a modern kitchen capable of preparing food for 500 people.

Aft of these galleys is a small space fitted as a mess room for hospital steward and head nurses. This mess room is especially adapted for its purpose, as it is about in the center of the strictly hospital space, and so even at meals the nursing force will be in ready proximity to the wards and patients.

The after half of this main deck comprises a small ward for commissioned officers; the operating room; the x-ray room; the pus-operating room, and the surgical ward with the same outfit as mentioned before for the convalescent ward, i. e., a serving room for food with heater and large electric stove; dish racks; sink and lockers; a room for head nurse; wash rooms; bath rooms; closets; linen lockers and refrigerator.

The operating room is sixteen feet long by twelve feet wide with adjoining sterilizing





Plan of the Upper Deck.

room, x-ray room and electro-therapeutic room. The operating and sterilizing rooms have a vitreous tiled floor, with sides and ceiling closed in with California red-wood, carefully tongued and grooved, and with rounded concave and convex edges. The wooden surfaces have been carefully enameled white and the room made perfectly aseptic. The operating room is fitted with the latest devices known in surgical fittings; a beautiful Boldt operating table; large white enameled stands and racks for holding all the usual dressing jars, basins, pans, etc., etc.; stands for instruments; surgeons' wash stands with hot and cold water (the water being all distilled); electric cauteries and an elaborate surgical instrument cabinet, well filled with an extensive array of surgical instruments. The sterilizing room opens from the main operating room and contains two large dressing sterilizers, one large instrument sterilizer with large hot and cold water sterilizers of the Kny-Sprague type with filter; the use of distilled water and sterilization by heat should make this water supply pure beyond doubt. The room also contains a small instrument table and a large Clough wash stand, for cleaning and washing instruments.

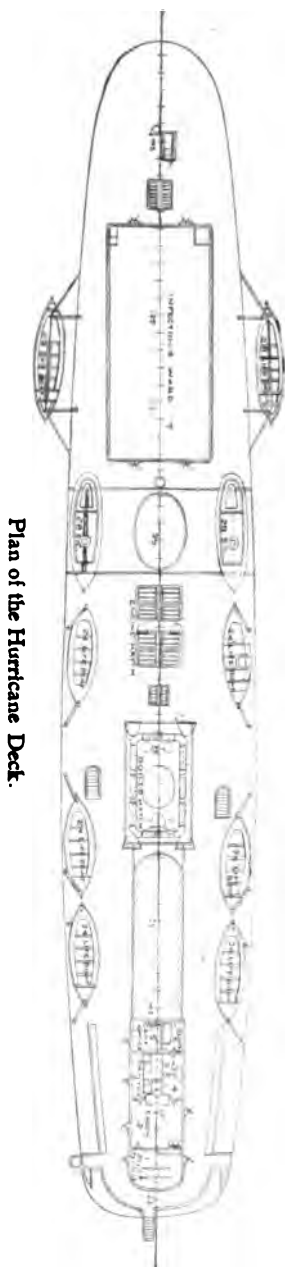
The x-ray room opens directly from the other end of the operating room, and contains the latest and largest Kny-Scheerer coil machine with electrolytic and mercury interrupters, also high frequency apparatus. With this machine is also a complete outfit for taking and developing radiographs, also a fine photographic outfit. The work of developing these pictures is provided for by a small dark room and developing chamber, annexed to the x-ray room. The x-ray room will be painted black so that it will be possible to use this room as a dark room. Electric cauteries, vibrators for massage, electrical de-

vices for the treatment of the nose, throat, eye and ear and for the examination of these organs have been provided. A fine ultra-violet ray has been added to this outfit and with the high frequency apparatus and transformer, both static and galvanic therapeutics are possible. A beautiful set of electrical instruments forms part of the armamentarium, such as electric drills, saws, and trephines.

The surgical ward has an air space of 12,504 cubic feet, accommodates forty patients and has 312 cubic feet per man. The ward is light and airy and only the inner tier of bunks are double banked, so that there is free ventilation and the patients are easily handled.

THE UPPER DECK has aft, a large airy ward, fitted up as a distinctly medical ward. At the forward end is a large general dispensary with adjoining room for the pharmacist. This ward has its own linen locker, baths, wash rooms and closets, also a dressing room, as each of the main wards have. It is the most attractive of the wards, and should be especially comfortable and efficient.

Forward on this deck is a large mess room or dining room for the use of convalescent patients. Opening off from this and directly over the ship's galley is a very large and complete general pantry and serving room, equipped with sinks, serving table, dish racks, and steam heaters and warmers. The mess room will accommodate sixty patients at one sitting, and as in each department, the idea of directly connecting each division with its component parts, so here



the mess rooms, pantrys, and serving rooms and galleys or kitchens are all grouped together and connected so as to facilitate the important work of proper feeding.

Forward of the mess room on this deck, on the port side, is a cosy little room fitted up neatly as a lounging room for sick commissioned officers, with sideboard, upholstered seats, table and easy chairs. The accommodations for sick commissioned officers, under the present arrangement are not as roomy as could be desired, and consist of one ward, adjoining the surgical ward, fitted with partially screened white enameled beds, with baths and closets adjoining, a desk and chair for the nurse on duty, and a small table for messing. Each officer is given a portion of the wards so arranged that it can be screened off by white curtains, thus giving an extra degree of privacy and quiet.

The forward space on the upper deck is the ward room, with adjoining state-rooms for the commissioned officers on duty, except the captain, who has quarters on the hurricane deck abaft the pilot house. The ward room is roomy and pleasant and has the usual fittings found in a ward room aboard any naval vessel.

THE HURRICANE DECK has been fitted up with an infectious ward in its after part, that will prove especially useful in the tropics. This ward is completely screened, built of light frame screens on a hard maple flooring. The roof is closed in by sectional frame screens, and over this will be double awnings to break the force of the sun's direct rays. There will be thirty cots in this ward. It will be absolutely fly- and mosquito-proof. In one corner is a latrine, which is piped over the side independently of any other piping or plumbing, so that there will be no possibility of any contamination. Mess tables and wire lockers are provided for the ward uses.

Forward on the hurricane deck are the captain's cabin, office and mess room.

Among the special fittings may be mentioned a dental parlor, fitted with the best S. S. White Dental Outfit and benches for mechanical and crown work. A neat desk is provided with a system of clinical dental charts for keeping records of cases. This place is amply supplied with lights and electrical appliances.

The finish is tiled flooring with white enameled finish for wood work. This work will be in charge of an experienced dentist, who will do the dental work for the ship and of the fleet, when the hospital ship is a part of any fleet.

A dead-room has been provided, and will be fitted with cold storage pipes. A complete embalming outfit has been provided and will be in charge of an instructed hospital steward.

Two rooms, aft on the upper deck, have been fitted up, one as a bacteriological laboratory and the other as a chemical laboratory. The outfits for these laboratories are complete and give in small space the same facilities for doing laboratory work that can be found in many of the larger laboratories of similar character in connection with institutions ashore. A complete microscopical outfit and general professional library with at least two standard works on each subject will be a part of this department. Cultures for diagnostic and research purposes will be carried and together with blood and parasitic research should be especially valuable in the study of diseases in the tropics and in places remote from the active medical centers. This department, it is expected, will be in charge of a medical officer especially trained for this work.

The medical staff will consist of one senior medical officer, in charge of the distinctly hospital features of the ship; one surgeon, as assistant to the senior medical officer and as operating surgeon; one assistant in charge of medical cases; a specialist in tropical diseases and diseases of the eye; and one assistant as a specialist in laboratory work and who will have charge of the infectious ward.

The hospital force will consist of one pharmacist in charge of the storerooms and dispensary; one steward in charge of the records and anesthetist; one steward in charge of the operating and dressing rooms and also of the surgical dressings; one steward (a graduate dentist of some years practice in civil life) as dentist; six first class hospital apprentices; one head nurse in charge of each ward; one in charge of warrant officers' and one in charge of sick commissioned officers' ward; hospital apprentices eighteen to twenty, to act under the head nurses in charge

of the wards, as attendants to sick officers, to furnish night watch, and for general cleaning and ward work.

All medical officers and hospital stewards will be assigned appropriate fields of instruction in the Corps, and daily lectures, recitations, practical demonstrations, U.S. Navy Drill Regulations, transportation of sick and wounded, etc., etc., will be given; the course of instruction being equal to, if not superior, to that of any school of nursing.

The accompanying plans of the *Relief* are added for purposes of comparison and study. The *Relief* is still under construction and the period of her active work not yet determined.

#### COMMENTS ON HOSPITAL SHIPS IN GENERAL.

While hospital ships are by no means a new feature in military and naval life, yet they have probably not yet reached their highest perfection. The efforts of the past fifteen years have been far in advance of anything ever contemplated before, and the probable developments in this line for the next twenty years will undoubtedly be striking. The idea in fitting up the *Relief* has been to attempt to establish afloat a hospital that shall have all of the facilities and comforts of a hospital ashore.

The lessons taught by the experiences of the past, tend to show that much time and thought are still needed to bring this factor in naval medical work to its proper perfection.

It must be understood that it is no more possible to take any old ship and convert her into a model hospital ship, than it is to take an old house and make a model hospital ashore. As certain constructions are designed and fitted for distinct purposes,—as a passenger steamer for passengers, a freight steamer for cargo, a battleship for war,—so a hospital ship should be built from the beginning with the single idea that it is for hospital purposes and nothing else. Until this is done we shall never have absolutely the ideal hospital ship. As in the construction of hospitals ashore a special form of architecture is demanded, so afloat the same ideas must be carried out. How ill fitted the elaborate fret-work and ornamental embellishment of an ordinary pas-



senger steamer is for hospital purposes, where only the smoothest and plainest of surfaces are needed! It is therefore the writer's hope that a hospital ship may sometime be built, from the keel up, with this single idea in view. It would be best built in a civilian shipyard, with no preconceived ideas of what a ship of this character should be, which might hamper in any way the one idea in view.

To be efficient, a hospital ship should be of sufficient size to give room and stability; of not less than 4,000 or 5,000 tons displacement, with a length of 350 to 450 feet and a beam of at least forty feet or more. There should be at least three of her decks clear and unobstructed for the purposes in view. A lower deck for the ordinary household purposes of washing, ice making, berthing of working crew and their closets, washrooms, baths, etc. The holds below this deck should be specially sheathed and divided for store rooms, cold storage, etc., made absolutely smooth and dirt proof. This would leave us two complete decks for hospital purposes, the main deck and the upper deck. These spaces should be divided into four grand divisions, one forward and one aft on each deck. Each division would constitute a ward with its adnexa. In the naval service one ward should be fitted for officers. A light running elevator should be built amidships from the hold to the hurricane deck. The after corners of the ward spaces, on the upper deck, should be fitted as seems best suited for laboratories (chemical and bacteriological) with plenty of light. The ship should have a high freeboard, and the hospital wards be as high above the water-line as possible. The hurricane deck should be substantial, and of size to hold accommodations, forward, for the captain and working officers of the ship. Aft should be the contagious ward, free from everything else. A spacious operating room should be fitted on the upper deck, with sky-lights overhead, and adjoining it should be the sterilizing room, x-ray room, ether and recovery room.

Many plans have been proposed for the arrangement of the space in hospital ships. A plan designed by Surgeon C. F. Stokes of the Navy, is perhaps one of the best. In the "Stokes" plan, the engine and firerooms are situated well aft; the idea be-

ing to leave free unobstructed space forward and to remove the heat and dirt of engine rooms as far away as possible.

Many problems are still unsettled, as for instance the matter of cots or beds. A perfectly satisfactory bed for all purposes, comfortable in a sea-way, with stability and easy to get at, has not yet been perfected.

The transportation of the sick and wounded from a battleship at sea to the hospital ship deserves careful study. Some method should be devised for rapidly, safely and comfortably transferring these patients without the use of small boats. Perhaps the most elaborate and elegant method is that shown in the "Stokes Apparatus for Transferring the Wounded at Sea." This method seems perfectly feasible and it is hoped that a practical test of this apparatus may be made in the near future. In this connection might also be mentioned the "Stokes Splint Stretcher," which will be adopted for use on the *Relief*, and a descriptive article of which, by Surgeon C. F. Stokes, U.S. Navy, will be found in the JOURNAL OF THE ASSOCIATION OF MILITARY SURGEONS, for August 1904.

There is thus a specially rich field for work and study in the matter of hospital ships, and the writer's idea in submitting this paper, is to arouse interest and thought on the subject.

#### RUBBER GLOVES IN MILITARY SURGERY.

VON Manteufel, (*Roussky Vratsh*) advocates the use of rubber gloves in military surgery. These gloves are sterilized and each is placed in a linen bag, which is closed with a button flap, and bears a mark on one side showing where the thumb of the glove is placed. The surgical kit which is used in the field should be provided with half a dozen sterilized pairs of gloves packed in the manner described, and in addition each surgeon and orderly should carry with him linen bags with several pairs of gloves. In using these gloves the flap of the bag is opened and the hand, previously covered with a little talcum, is introduced into the glove without removing it from the bag, the opposite hand being used outside of the bag for putting on the glove. When both gloves are put on, the bags are taken off, and the result is two perfectly sterile hands.

## THE OPERATION FOR THE RADICAL CURE OF CONGENITAL INGUINAL HERNIA.

By ALFRED CANDEE SMITH, M.D.,  
SURGEON IN THE PUBLIC HEALTH AND MARINE HOSPITAL  
SERVICE OF THE UNITED STATES.

THE congenital form of inguinal hernia possesses characteristics which might properly place it in a division by itself with reference to the operation for radical cure, and the meagerness with which writings on the subject of the cure of hernia deal with that form has led me to write the present article, based upon moderate operative experience.

In the normal descent of the testicle, during fetal life, the testicle, in emerging from the abdomen, is accompanied or preceded by a pouch of peritoneum, the processus vaginalis, which forms both the outer covering of the organ and its enveloping sac, the tunica vaginalis. After it descends through the inguinal canal, about the time of birth, the processus vaginalis becomes obliterated above the testicle, and the peritoneal cavity is thereby made intact at the internal ring. Occasionally the pouch fails to become obliterated, and an open track, more or less wide, persists between the peritoneal cavity and the sac of the testicle, constituting the pathway for congenital hernia. In such a case the peritoneal membrane not only invests the testicle but lies close against the vas deferens and other essential structures of the cord and is more or less intimately attached to them. It is this intimate association that many times causes difficulty in operating.

Theoretically the diagnosis of congenital hernia is easy. In actual practice the surgeon is liable to be taken entirely unawares by this condition in operating on adults. In its most typical exhibition the testicle on the affected side is smaller and held higher up in the scrotum than on the opposite side, and the history is that of a hernia existing from childhood; sometimes, however,

there is no descent of hernia in a congenital sac until adult life, and there is nothing to indicate definitely its form. With the hernial contents completely descended and in contact with the testicle, the diagnosis is simplified; but the surgeon who is called on to do the operation for radical cure rarely sees the hernia in such a state.

In the text books on operative surgery and in articles on the subject of the radical cure of hernia there is surprisingly little reference to congenital hernia as a form requiring special consideration. Bryant, in his standard work on operative surgery, under the head of remarks on the Bassini operation, says that, "the separation of the sack from the cord is often very difficult, especially in herniae of congenital origin." But he offers no advice to the inexperienced surgeon on how to meet the difficulty. Marcy, in his work, *The Anatomy and Surgical Treatment of Hernia*, makes mention of the treatment of the congenital sac in describing operative procedures. I quote his words, as follows: "It is sewed across to form the tunica vaginalis testis. The suturing is continued upward to close in upon the cord with its vessels, and the sac is narrowed at its abdominal outlet, to prevent pouching of the redundant peritoneum, and excised." I must confess I do not understand the method from the description; in particular, I do not understand how the sac is narrowed at its abdominal outlet.

It is more commonly stated or assumed by authors that the congenital sac is to be treated at the internal ring in the same manner as the acquired; that is to say, the neck is to be dissected from the cord and transfixed and ligated, the only special measure being the formation and closing of a tunica vaginalis below. I will not say positively that there are cases in which, by minute dissection, the sac cannot be separated from the cord without tearing the former or wounding essential structures in the latter; but there are cases in which it is not practicable, even to the most skillful operator. If, in these more difficult cases, an effort is made to deal with the sac in the ordinary manner, an open rent is pretty sure to be left in the peritoneum next the cord, a dangerous defect to say the least.

The first case of this form puzzled me excessively. The testicle was small and undeveloped and barely descended into the scrotum, and the sac was so closely associated with the vas that it seemed impossible to make a separation. I solved the problem by removing the testicle. Fortunately the patient did not set great store by his ill-formed organ, having another one well-grown, and when I explained that I had to remove it to cure the hernia he expressed no regret; but it was plainly necessary to work out a different method for future cases. My present method is as follows:

After forming a tuuc for the testicle out of the lower end of the sac, the remainder of the sac excepting the strip of membrane which lies immediately upon the vas and its companion vessels and nerves, is trimmed away close to the abdominal cavity. A simple wound of the peritoneum results, and it is closed with a continuous suture, one extremity ending at the cord. The transversalis fascia is sutured either with the peritoneum or separately, and the operation is proceeded with according to the Bassini method. The strip which is left attached to the cord consists of peritoneal membrane, thin or thick according to circumstances, and it does not interfere in any degree with the closure of the openings in the sac, either above the testicle or at the internal ring. There is no more difficulty in closing the peritoneal wound completely and securely than in any other situation. The method is so simple as to require little explanation, and it seems to me to be advantageous in dealing with a condition which may otherwise cause embarrassment and possibly lead to an imperfect result.

I am unable to give any figures to indicate the frequency of congenital hernia compared with the acquired form. Out of sixty-three hernias operated upon in sixty adults, of which I have the records at hand, four were of the congenital form. My experience has been with men exclusively. A brief description of the congenital cases follows:

*Case 1.* Age, 35 years. The hernia had existed as long as the patient could remember. The testicle was small and drawn high up in the scrotum and could be pushed back into the inguinal canal. The sac could not be separated from the cord.

*Case 2.* Age, 45 years. The hernia appeared when the patient was twenty years old and had therefore existed twenty-five years. The sac at the neck was readily separated from the cord.

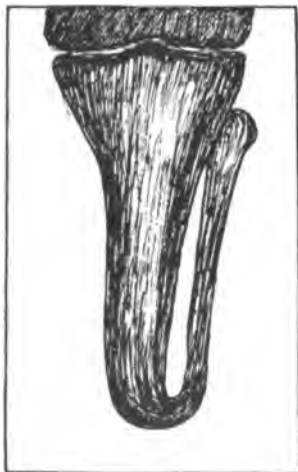
*Case 3.* Age 22 years. The hernia was descended for the first time and was strangulated. The sac was closely united to the vas.

*Case 4.* Age, 26 years. The hernia appeared when the patient was twenty-two years old and had existed four years. The sac was closely united to the vas.

It will be seen that Case 2, in which the sac was easily separable from the cord at the neck, had had a duration of a good many years. It is probable that the neck of the sac in that case was a new formation which had been drawn down from the abdominal peritoneum by the sagging of the hernia and was not a part of the original processus vaginalis.

#### OSTEOPLASTIC AMPUTATION OF THE LEG.

**O**STEOPLASTIC amputation of the leg consists in detaching a piece of bone from the internal surface of the tibia, leaving its periosteal attachment intact, and joining thereby the cut ends of the tibia and fibula, this makes a stump



Remote Results of Osteoplastic Amputation of the Leg with Posterior Flap.

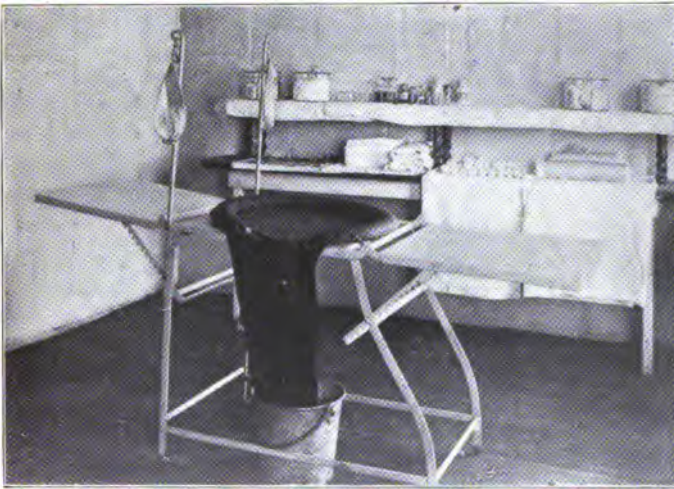
capable of supporting the weight of the body. Duval has just published four of these cases with their remote results, three of them having been operated on by him, and the other by Quénu. The method used was the classical posterior flap with the bony connection between the tibia and fibula. After three years the stumps show a perfectly physiological and anatomical condition. These favorable observations show the advantage of a method which gives to the working class a useful, strong, and painless stump. The illustration is drawn from a skiagraph of one of the cases and shows the remote results of the operation S.M.D.

## AN EXTEMPORIZED OPERATING ROOM,

By CAPTAIN M. A. REBERT,  
YORK, PENNSYLVANIA.

LATE ASSISTANT SURGEON OF UNITED STATES VOLUNTEERS.

**I**N 1901, I was the surgeon to a command of over five hundred officers and men which did a great deal of "hyking" and consequently developed a considerable number of surgical cases. We occupied, as a hospital at Borongon, east coast of Samar, P. I., a reconstructed, two story, native house, the best



**View in Operating Room extemporized from Tin Cans at Borongon, Samar.**

in the place. It was without partitions, and it was found impossible to secure lumber from local sources, or from the supply departments at Manila. It occurred to me to utilize hard tack tins as they were emptied of their contents. These were trimmed and cleated into square sheets and nailed on frame work. In this manner we finally succeeded in enclosing a room practically metal

lined and dust proof, nine by twelve by eight feet. The door, wash stand, sterilizing tables, and shelves for dressings were also made by the men of the command from odd bits of lumber picked up on "hykes."

The photographs of the operating room thus constructed illustrate what can be accomplished in remote and isolated places to furnish suitable environment for clean surgical work.



View in Operating Room extemporized from Tin Cans, at Borongon, Samar.

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#### THE FLOOR, THE ENEMY IN MILITARY HYGIENE.

ALL the avoidable diseases—except typhoid,—says Granjux, (*Le Caducée*) are on the increase in the army. This increase is due to the infection of the barracks. This infection comes from the cracks in the floor. It has resisted all methods of disinfection employed up to this time. We must stop up the cracks in the flooring and make them impermeable. We must use more energetic methods of disinfection in the army than those heretofore in use.—SAMUEL M. DELOFFRE.



## Contemporary Comment.

### IMPROVISED SKI-SLEDGES FOR THE TRANSPORT OF THE WOUNDED.

**I**N the *Tidskrift i Militar Halsovard*, 1903, appears a report by A. Wahlstedt upon recent trials made at the School for Non-Commissioned Officers of the Gota Guards under Lieutenant Schartau upon the combination of ski to form transport sledges. The following method proved to be the most practicable. Four ski are placed beside each other on the ground and



**Elements of Heyerdahl Ski-Sledge for Transportation of the Disabled.**

a short strong stick is put through the four toe straps. With the assistance of the posterior binding straps the ski are fastened strongly to each other. In front, over the ski points, similar straps are placed and fastened firmly to the free points with firm close binding. To prevent the anterior stick from slipping from the ski points under transport, both ends of the cord used for

fastening are stretched, from the outermost binding on the ski, backward to the rear stick where they are securely fastened. To obtain firmness at the sides, a ski strap is placed on each side of the sledge so that the handle of the stick in front is inserted into the toe strap of the outermost ski, the ski points entering into the ring at the stick's lowest end. If the ski-sledge (which loaded with three ammunition boxes, weighing seventy-five kilograms all together, can be drawn by one man) is used for transportation of the disabled, the knapsack of the patient is placed



**Heyerdahl Ski-Sledge for Transportation of the Disabled, Assembled.**

with one edge against the ski sledge's foremost stick and the knapsack thus does service as a head protector.

The accompanying cuts speak for themselves with regard to a ski-sledge devised by Lieutenant S. A Heyerdahl of the Norwegian service and described in the last number of the *Norsk-tidsskrift for Militar Medecin*. The adaptation of the litter to the ski is most interesting and effective and promises to be of vast utility in northern lands where snow prevails for a large portion of the year and particularly in Scandinavian districts, where the use of the ski is common.—HANS DAAE.

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## Editorial Expression.

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### DR. BENJAMIN RUSH, SURGEON GENERAL OF THE MIDDLE DEPARTMENT OF THE ARMY OF THE REVOLUTION.

**W**HEN the Medical Department of the Revolutionary Army was reorganized in 1777, it was desired to bring the highest class of medical men into the attendance upon the sick, for which reason high sounding titles were provided. In addition to the Director General of the Medical Department, Physician Generals of the Hospitals, Surgeon Generals of the Hospitals, and Physician and Surgeon Generals of the Army were provided in each of the military departments into which the service was then divided. Dr. Benjamin Rush, a distinguished physician of Philadelphia, was appointed Surgeon General of the Hospital in the Middle Department. This was the first appearance of the title of Surgeon General in the American service, there being such an officer for each of the three Departments. Dr. Rush held the position however for only twelve weeks, transferring to the position of Physician General upon the resignation of Dr. Walter Jones of Virginia, who had previously held that office.

A great deal has from time to time been written about Dr. Rush, who was the leading medical practitioner and teacher of his day and whose work, as a military medical officer, was greatly overshadowed by his distinguished labors as a civilian practitioner and teacher. Dr. Rush was a member of the Continental Congress of 1776 and his autograph appears among the signatures to the Declaration of Independence. He was profoundly interested in every movement for the advancement of the medical service among the Revolutionary troops, and served his state for a time as Surgeon General of the Pennsylvania Navy, which performed important services in behalf of American independence.

He was born near Philadelphia, December 24, 1745, educated at the Nottingham Academy and graduated at Princeton College in 1760. He then devoted six years to the study of medicine and was one of the first class to attend Dr. Shippen's anatomical lectures. In 1766 he proceeded to Edinburgh where he received the degree of M. D. in 1768. In 1769 he became Professor of Chemistry in the College of Philadelphia, which in 1791 was merged into the University of Pennsylvania, with Rush as Professor of the Institutes and Practice of Medicine. His fame as a medical teacher, both verbally and through the enormous volume of published works produced by him, has rendered his name famous in the annals of medicine in the United States.

His activities were not limited to medical matters, but he was broadly interested in everything which related to progress and national growth. In addition to his membership in the Continental Congress he served as treasurer of the national mint for fourteen years, his connection therewith being severed only by his death.

In educational matters he was a leader. A friend and active promoter of the University of Pennsylvania, he at the same time believed that there was need for an institution of learning farther west in his state, and it was through his agitation and earnest solicitation that a college was established in Carlisle, then on the advanced frontier of Pennsylvania, to which was attached the name of another distinguished Revolutionary patriot, John Dickinson, then the governor of the commonwealth.

He was an inveterate opponent of capital punishment, and by pen and voice actively labored toward the abolition of punishing even murder by death, his pamphlet on "An Inquiry into the Justice and Policy of Punishing Murder by Death," being an eighteenth century American classic. He was an active temperance worker and probably his brochure, "Inquiry into the Effects of Ardent Spirits upon the Human Body and Mind," was the most popular of his many literary productions, although his "Observations upon the Influence of the Habitual Use of Tobacco upon Health, Morals and Property," was also widely circulated. He was one of the earliest of the abolitionists and labored actively by pen and voice against the institution of slavery.



**STATUE OF BENJAMIN RUSH,  
ERECTED BY THE MEDICAL PROFESSION IN THE  
CITY OF WASHINGTON.**

His account of the Philadelphia epidemic of yellow fever in 1793 is perhaps his most widely known medical work, but his other works covered so extensive a field, and revealed so profound a knowledge, so quick a perception and so clear a diction, that they speedily became classics in professional literature. His descriptions of disease were marked by extreme minuteness and accuracy of detail; his work on gout, ascites, pulmonary consumption and the diseases of old age was especially noteworthy; his "Defense of Blood Letting" was a stout prop to the practice of phlebotomy; and his treatise on "Diseases of the Mind" was the great authority of the age.

Dr. Rush was a warm personal friend of Director General Morgan and an equally strong opponent of his successor and rival Director General Shippen. He addressed a letter to Congress, reflecting upon abuses present in the medical department, and later preferred against Shippen formal charges, upon which however, no final action appears to have been taken.

In addition to his distinguished public talents, where his intellectual endowments caused him to be admired and courted, he was possessed of personal characteristics which drew to him in bonds of strongest affection those who were honored by his friendship. The affability of his manner, the amiability of his temper and the benevolence of his character were ever conspicuous.

All of these personal qualities and accomplishments combined to render him easily facile princeps in the profession which he adorned, so that when the project of erecting a statue to a representative American physician in the national capital was mooted, the name of Benjamin Rush was selected without hesitation. This plan was earnestly prosecuted for many years by a distinguished successor in the national medical service, Commodore Albert L. Gihon, Medical Director, Retired, in the U. S. Navy, the fourth President of the Association of Military Surgeons of the United States,—although it was not until 1904, some years after Gihon's untimely demise that the statue was erected and dedicated by a great concourse of the physicians of America as a lasting memorial of the work of the first titular Surgeon General in the American Army, as shown in the engraving for which we are indebted to the courtesy of the *Journal of the American Medical Association*.



## THE ARBITRATION COURTS FOR MILITARY MEDICAL OFFICERS IN GERMANY.

A STRIKING article in *Der Miliärarzt* (interestingly epitomized by Major Laval in *Le Caducée*) gives an outline of the organization and purposes of the Arbitration Courts for the Medical Department of the German Army. The purpose of these courts is to protect the honor of the Corps in general and that of each member in particular. To secure this end:

1. They may take action along prescribed lines against medical officers whose conduct does not conform to the strict principles of honor or to the requirements of their position; and, when necessary to protect the honor of the profession, to eliminate unworthy members from the Corps.

2. Or they may proceed to clear from calumnious accusations members whose honor is unjustly attacked, when other resorts, proper in the situation, cannot be employed.

Courts of Arbitration may intervene then in case of the following circumstances:

- a. Acts or negligences on the part of officers of the Medical Department which are contrary to strict honor or to the dignity of the profession and which thus reflect upon the honor of the whole Corps.

- b. Cases in which medical officers ask for the decision of the Court upon a question touching their personal honor.

When a case comes within the purview of a Court and is at the same time subject to the action of penal law, the intervention of the Court should, in order to impose a penalty in accordance with the theory of honor, follow immediately after the completion of the legal process.

The following officers are subject to the Arbitration Courts:

1. All officers of the Medical Department in active service.
2. All officers of the Medical Department of the Reserve and of the Landwehr.
3. Retired officers drawing a pension and those having the right to wear the uniform.

Those who have the right to participate in the Courts of Arbitration are:

1. Medical officers of the active forces.
2. Non-active medical officers, during the period which they pass with the colors (period for instruction, etc.).

Retired military medical officers, of the third class are subject to the Arbitration Courts without the right to become members of them.

Arbitration Courts are sub-divided into:

1. Courts for medical officers ranking from Lieutenant to Lieutenant Colonel.
2. Courts for medical officers ranking as Colonel or as General officers. When the necessity arises for a Court to act upon officers of this class, permission is required from the Minister of War.

A Court for medical officers of the lower grades exists in each Division. These tribunals are composed of medical officers of the Division and are convoked by the Division Surgeon.

In the territory of each Army Corps there is a Court composed of the Chief Surgeon of the Corps and of six members, to act in case of Colonels and Generals.

In every Court of Arbitration there exists a Council of Honor which, under the direction of the presiding officer of the Court, takes up questions of honor. The senior member of the Council of Honor is the President. The junior members are two officers of the grade of the officer under investigation and one of the grade next above.

Every medical officer has the right to bring before the Council of Honor any act or facts of any kind pertaining to any member of the Medical Department of the Army or Navy which may be of such a nature as to be prejudicial to the honor of the individual or Corps. The Council of Honor, on the other hand, as soon as it is notified of a complaint notifies the Director of the Court of the fact.

At the close of the prosecution the accused is instructed by the Council of Honor as to the points upon which he should base his defense. He is asked to bring his defense before the Council

of Honor in writing; then he is expected to repeat verbally or complete this deposition before the Council in session. But the accused may also make his defense in writing through one of his comrades upon the condition that his counsel be not of a grade inferior to himself. At the close of the proceedings, the accused is notified of the place and date when the findings will be announced.

The accused has the right to object to members of the Council of Honor. The Director of the Court, in addition to presiding, is charged with the collection of the several elements of the case, —complaints, testimony and witnesses, the defendants and relatives of the accused as well as the persons implicated in the affair of honor. As relatives of the accused only father, son, uncle, nephew direct and children of sisters are accepted.

The finding of the Arbitration Court may be:

1. No action.
2. More complete instructions.
3. Acquittal.
4. Recognition that the accused has placed the honor of the Corps in jeopardy and a consequent warning as to future conduct, the Council of Honor being satisfied that he has not deserved punishment.
5. A deviation from honor satisfied by a simple change of station or duty, if the Council is convinced that the accused cannot with propriety remain in his present position.
6. A deviation from honor with aggravating circumstances necessitating dismissal from the Medical Corps, if the Council is persuaded that the accused is not worthy to continue to wear the uniform.

The Minister of War alone can revise a decision of an Arbitration Court. There is no Arbitration Court for medical officers who have completed their service (officers of the reserve and the like) but these may be summoned before a Council of Honor which acts for civilian physicians.

A special clause of the regulations of these Arbitration Courts refers to the duello. It tends to restrain its employment and recommends a charitable attitude toward one who may have deviated from the strict path of honor.

## News of the Services.

Colonel George W. Adair, U.S.A., promoted from Lieutenant Colonel.

Dr. George W. Adair, U.S.A., ordered from Fort Wadsworth to Fort Banks for temporary duty.

P. A. Surgeon J. L. Angeny, U.S.N., ordered from the Culebra Naval Station home on waiting orders.

Captain H. C. Baum, N.G.N.Y., of Syracuse, N.Y., has been, at his own request, placed on the retired list after twenty-five years service.

P. A. Surgeon W. L. Bell, U.S.N., ordered to the Mare Island Naval Hospital for treatment.

P. A. Surgeon T. S. Berry, P.H. & M.H.S., promoted from Assistant Surgeon.

Surgeon T. A. Berryhill, U.S.N., ordered from the *Oregon* home to waiting orders.

Medical Director D. N. Bertolette, U.S.N., commissioned Medical Director with the rank of Captain.

Medical Inspector Henry G. Beyer, U.S.N., commissioned Medical Inspector with the rank of Commander.

P. A. Surgeon W. C. Billings, P. H. & M.H.S., ordered from Quebec, Canada to Seattle, and to temporary duty on the *Perry*.

Lieutenant C. G. Billingslea, U. S. A., granted two months leave.

Major William C. Borden, U.S.A., ordered to represent the Army Medical Department at the meeting of the Interstate National Guard Association at St. Paul, Minn.

P. A. Surgeon J. M. Brister, U.S.N., ordered from the Philadelphia Naval Hospital to the *Atlanta*.

Lieutenant Earl H. Bruns, U.S.A., appointed Assistant Surgeon U.S. Army, and ordered to duty at the Sequoia National Park.

Major George E. Bushnell, U.S.A., appointed delegate to the National Association for the study and prevention of tuberculosis.

Colonel C. B. Byrne, U.S.A., ordered to the Philippines.

Surgeon P. M. Carrington, P.H. & M.H.S., appointed delegate to the American Association for the study and prevention of tuberculosis, and granted leave for a month and a half.

Major Edward C. Carter, U.S.A., granted two months leave.

Assistant Surgeon R. B. Chapman, U.S.N., ordered from the Mare Island Naval Hospital to the Asiatic Station.

Lieutenant Walter C. Chidester, U.S.A., granted two months leave of absence.

Captain Jere B. Clayton, U.S.A., ordered from Fort W. H. Seward to Seattle, Wash.

Assistant Surgeon A. H. Clifford, U.S.N., ordered from the New York Navy Yard to the Naval Hospital, Canacao, P.I.

Lieutenant Clarence L. Cole, U.S.A., appointed Assistant Surgeon.

Captain Walter Cox, U.S.A., ordered for duty in connection with the Army and Navy maneuvers.

Lieutenant Charles F. Craig, U.S.A., reassigned to the Presidio General Hospital, and later ordered to transport *Logan* and for duty in the Philippines on arrival at Manila.

Dr. George W. Daywalt, U.S.A., on temporary duty at Jackson Barracks.

Lieutenant Samuel M. DeLoffre, U.S.A., ordered from Fort Assiniboine to Fort Schuyler.

Surgeon J. B. Dennis, U.S.N., ordered from the *Detroit* to special duty at Philadelphia and thence to report to the Surgeon General at Washington.

Assistant Surgeon P. T. Dessez, U.S.N., granted two months sick leave.

Surgeon C. M. DeValin, U.S.N., commissioned Surgeon with the rank of Lieutenant Commander.

Lieutenant William A. Duncan, U.S.A., appointed Assistant Surgeon U.S. Army, and ordered to Fort Leavenworth, Kans.

Assistant Surgeon H. A. Dunn, U.S.N., ordered to the *Terror*, and commissioned P. A. Surgeon with the rank of Lieutenant.

Major Rudolph G. Ebert, U.S.A., ordered to inspect Medical Department at Forts Walla Walla, Wright, Worden, Casey, Flagler, Lawton, Ward, Columbia and Stevens.

Lieutenant James F. Edwards, U.S.A., granted two months leave of absence.

Lieutenant George M. Ekwurzel, U.S.A., ordered on examining duty at West Point.

Major Charles B. Ewing, U.S.A., ordered from Columbus Barracks to the Philippines, July 31, 1905.

Captain Bruce Ffoulkes, formerly Assistant Surgeon U.S.V. and recently Contract Surgeon U.S.A., has withdrawn from active service and engaged in private practice in San Francisco.

P. A. Surgeon F. M. Furlong, U.S.N., ordered to the naval medical school.

P. A. Surgeon W. M. Garton, U.S.N., ordered to the naval medical school.

Assistant Surgeon A. J. Geiger, U.S.N., ordered from the Port Royal Naval Station to the *Chesapeake*.

Lieutenant Herbert C. Gibner, U.S.A., appointed Assistant Surgeon U.S. Army, and ordered to duty at Sequoia National Park.

Colonel J. B. Girard, U.S.A., ordered home from the Philippines on account of ill health.

Colonel William C. Gorgas, U.S.A., Chief Sanitary Officer of the Canal Zone, has been assigned to duty as Acting Governor in the absence of General Davis, who has been relieved on account of illness.

Lieutenant Colonel William W. Gray, U.S.A., promoted from Major.

Surgeon M. S. Guest, U.S.N., commissioned Surgeon with the rank of Lieutenant Commander.

Colonel John D. Hall, U.S.A., granted a month's leave.

Sir James Hanbury, Surgeon General, Retired, British Army, has been granted the distinguished service pension reward of \$500.00 a year.

Major H. S. T. Harris, U.S.A., ordered from Fort Slocum to the Philippines.

Colonel Valery Havard, U.S.A., having returned from detached service with the Russian Army in Manchuria where he was captured by the Japanese forces at Harbin, has returned to his station at Governor's Island.

Assistant Surgeon W. S. Hoen, U.S.N., ordered home from the *Oregon*.

Dr. Gustavus I. Hogue, U.S.A., ordered from Fort McDowell to the Depot of Recruits and Casuals, Angel Island.

P. A. Surgeon R. C. Holcomb, U.S.N., ordered from the *Cleveland* to the Culebra Naval Station.

Dr. Thomas G. Holmes, U.S.A., returned to Fort Wayne from leave.

Captain Reeve Beecher Howland, N.G.N.Y., of Elmira, N. Y., has been promoted from Lieutenant and Assistant Surgeon of the 30th Separate Company to Battalion Surgeon.

Assistant Surgeon H. P. Hull, U.S.N., ordered from the *Franklin* to the Philadelphia Naval Hospital.

Surgeon E. O. Huntingdon, U.S.N., ordered from the Recruiting Station at Chicago to the *Albatross*.

Captain Paul C. Hutton, U.S.A., granted a month's leave of absence.

Dr. Thomas W. Jackson, late Captain and Assistant Surgeon, U.S.V., is announced as the author of a forthcoming book upon "Tropical Diseases, with Special Reference to the West Indies, Central America, Hawaii and the Philippines."

Lieutenant George W. Jean, U.S.A., ordered for duty in connection with the Army and Navy maneuvers.

Lieutenant Percy L. Jones, U.S.A., ordered for duty in connection with the Army and Navy maneuvers.

Major Jefferson R. Kean, U.S.A., ordered to proceed to Panama in connection with the purchase of medical supplies for the Health Department of the Canal Zone.

P. A. Surgeon J. W. Kerr, P.H. & M.H.S., ordered from Ellis Island to Quebec.

Lieutenant Henry S. Kiersted, U.S.A., ordered for duty in Sequoia National Park.

Major Louis A. LaGarde, U.S. A., granted six weeks leave.

P. A. Surgeon R. E. Ledbetter, U.S.N., ordered from the *Dixie* to the *Detroit*.

P. A. Surgeon L. L. Lumsden, P.H. & M.H.S., ordered from Philadelphia to Baltimore and to temporary duty on the *Chase*.

Dr. William C. Mabry, U.S.A., granted one month's leave of absence.

Dr. Francis H. McCallum, U.S.A., returned to Fort D. A. Russell from temporary duty at Fort Washakie.

Assistant Surgeon N. T. McLean, U.S.N., ordered from the Boston Naval Hospital to Guam.

P. A. Surgeon A. J. McLaughlin, P.H. & M.H.S., promoted from Assistant Surgeon.

Assistant Surgeon J. D. Manchester, U.S.N., ordered from the *Petrel* to the *Princeton*.

Major Charles F. Mason, U.S.A., appointed member of Board to select a site for a new Army Post near Buffalo, and ordered on examining duty at West Point.

Lieutenant Colonel Louis M. Maus, U.S.A., ordered to inspect Medical Department of Forts Logan H. Roots, Reno and Sill.

Assistant Surgeon O. J. Mink, U.S.N., ordered from the New York Naval Hospital to the Asiatic Station.

P. A. Surgeon J. M. Moore, U.S.N., ordered to the Chicago Recruiting Stations.

Lieutenant Colonel E. B. Moseley, U.S.A., ordered to make an inspection tour of the Department of Colorado.

Assistant Surgeon E. H. Mullan, P.H. & M.H.S., ordered from Stapleton to Ellis Island.

Assistant Surgeon F. M. Munson, U.S.N., ordered home on waiting orders from Guam.

Surgeon F. S. Nash, U.S.N., ordered to the *Oregon*.

Assistant Surgeon J. L. Neilson, U.S.N., ordered home on waiting orders from Guam.

Assistant Surgeon O. M. Oman, U.S.N., ordered home from the *Frolic*.

Major William O. Owen, U.S.A., granted three month's sick leave and assigned to station at Fort Logan.

Assistant Surgeon W. D. Owens, U.S.N., ordered from the Mare Island Naval Hospital to the Asiatic Station.

Lieutenant Fred W. Palmer, U.S.A., returned to the United States Rifle Range Arcadia, Mo.

Dr. Omar W. Pinkston, U.S.A., ordered from Washington, D. C., to Fort Mansfield.

Assistant Surgeon F. E. Porter, U.S.N., ordered from the Norfolk Naval Hospital to the *Dixie*.

Major Junius L. Powell, U.S.A., ordered from Fort Hamilton to the Philippines, June 30, 1905.

Major Henry I. Raymond, U.S.A., granted two months extension of leave.

Lieutenant William W. Reno, U.S.A., ordered from the transport *Sumner* to Fort Myer, and for duty in connection with the Army and Navy maneuvers.

Major F. P. Reynolds, U.S.A., ordered for duty in the Yosemite National Park, and from the Presidio to Fort W. H. Seward.

Captain Thomas L. Rhoads, U.S.A., ordered on examining duty at West Point.

Dr. William H. Richardson, U.S.A., ordered from Cincinnati, Ohio, to Fort Sheridan.

Lieutenant C. P. Robbins, U.S.A., ordered for duty in connection with the Army and Navy maneuvers.

Dr. Ernest E. Roberts, U.S.A., granted three months leave.

Lieutenant William Roberts, U.S.A., ordered for duty in connection with the Army and Navy maneuvers.

P. A. Surgeon D. E. Robinson, P.H.&M.H.S., ordered from Port Townsend to San Francisco and for temporary duty on the *Manning*.

Lieutenant E. P. Rockhill, U.S.A., granted one month's extension of sick leave, and ordered from Presidio to Fort Wingate.

Captain Frederick P. Russell, U.S.A., ordered from Fort Wingate to the Presidio.

Dr. Najeeb M. Saleeby, U.S.A., Provincial Superintendent of Schools in the Moro Province, receives special mention in the report of the Department Commander, Major General Leonard Wood.

A. A. Surgeon M. V. Safford, P.H.&M.H.S., ordered to Portland, Me., for special duty.

Lieutenant Herbert M. Smith, U.S.A., on temporary duty at Fort McDowell.

Assistant Surgeon H. W. Smith, U.S.N., ordered from the Naval Medical School to the Naval Hospital, Canacoa, P. I.

Dr. Frederick H. Sparrenberger, U.S.A., ordered from Fort Mott to Sea Girt, N. J.

Surgeon General W. F. Stevenson, U.S.A., well known as the author of *Wounds in War*, and as Professor of Surgery in the Royal Army Medical College, who was to have retired last month, has been retained on the active list until the end of July.

Assistant Surgeon A. M. Stimson, P.H.&M.H.S., ordered from the Hygienic Laboratory to Ellis Island, N. Y.

Assistant Surgeon R. E. Stoops, U.S.N., ordered from the *Pensacola* to the Asiatic Station.

Capt. Paul F. Straub, U.S.A., assigned to duty with the Isthmian Canal Commission.

Assistant Surgeon C. E. Strite, U.S.N., ordered from the Norfolk Naval Hospital to the Asiatic Station.



P. A. Surgeon A. Stuart, U.S.N., ordered to the Chelsea Naval Hospital.

P. A. Surgeon J. C. Thompson, U.S.N., ordered from the *Albatross* home on waiting orders.

Lieutenant R. M. Thornburgh, U. S. A., ordered for duty in connection with the Army and Navy maneuvers.

P. A. Surgeon H. M. Tolfree, U.S.N., commissioned P. A. Surgeon with the rank of Lieutenant, and ordered to the Naval Medical School.

Assistant Surgeon J. W. Trask, P.H.&M.H.S., ordered from Chicago to duty at the Bureau in Washington.

Lieutenant A. E. Truby, U.S.A., ordered from Alcatraz Island to Co. B, Hospital Corps, at Presidio.

Captain Willard F. Truby, U.S.A., ordered for duty in connection with the Army and Navy maneuvers,

Surgeon J. F. Urie, U.S.N., ordered to the *Pennsylvania*.

Assistant Surgeon E. A. Vickery, U.S.N., ordered from the *Southery* to the *Franklin*.

Lieutenant S. H. Wadhams, U.S.A., ordered from the transport *Lopan* to Alcatraz Island.

P. A. Surgeon U. R. Webb, U.S.N., commissioned P. A. Surgeon with the rank of Lieutenant.

Captain Henry A. Webber, U.S.A., detailed upon a Board for the examination of candidates for the Military Academy.

Surgeon W. M. Wheeler, U.S.N., ordered to the *Cleveland*.

Dr. Samuel J. White, U.S.A., ordered from Camp Lakeview to Fort Snelling and returned therefrom.

Assistant Surgeon G. L. Wickes, U.S.N. ordered from the *Lancaster* to the Asiatic Station.

Major Charles Willcox, U.S.A., ordered for duty in connection with the Army and Navy maneuvers.

Lieutenant A. W. Williams, U.S.A., assigned to temporary duty in connection with the Army and Navy exercises.

Leutenant Fred W. Williams, U.S.A., ordered to the U.S. Rifle Range, Arcadia, Mo.

Captain James S. Wilson, U.S.A., assignment to duty with joint Army and Navy exercises revoked.

Surgeon R. D. Wilson, U.S.N., commissioned Surgeon with the rank of Lieutenant Commander.

Major R. S. Woodson, U.S.A., promoted from Captain.

Captain Robert N. Winn, U.S.A., promoted to Captain.

Lieutenant John D. Yost, U.S.A., ordered to Presidio for examination for promotion.

AMBULANCE COMPETITION IN INDIA.—The silver challenge shield presented by the Prince of Wales and the Order of St. John to encourage

ambulance work among the Indian Volunteers, was won by the Calcutta Port Defence Volunteers. A silver badge of merit was conferred upon each member of the team and numerous prizes were also awarded.

**CALIFORNIA NATIONAL GUARD.**—In accordance with recent state legislation, a number of medical officers previously holding the rank of Captain, not having served five years, are reduced to the grade of First Lieutenant.

**ELIGIBILITY OF A PORTO RICAN TO APPOINTMENT IN THE MEDICAL DEPARTMENT.**—The Judge Advocate General of the Army has decided that a Porto Rican is eligible for appointment as Assistant Surgeon in the Army in the discretion of the Secretary of War.

**INTERNATIONAL MEDICAL ASSOCIATION AGAINST WAR.**—The latest freak association announced was organized in Paris at the house of Dr. Rivière. The Association is proposed to be international and a Congress is planned to meet in 1907.

**ILLINOIS NATIONAL GUARD** examinations for medical officers were held at Rush Medical College on the 29th of April, with Colonel Nicholas Senn, Lieutenant Colonel G. Paull Marquis, Major Charles Adams and Captain S. C. Stanton as the Examining Board.

**JOURNAL OF FIRST AID.**—A First Aid Journal is to be issued at an early date as the organ of the American White Cross Association in Chicago.

**MASSACHUSETTS VOLUNTEER MILITIA MEDICAL SCHOOL.** The Proceedings of the Massachusetts Volunteer Medical School, held in December, 1904, are published in an interesting pamphlet containing papers by Lieutenant Colonel Foster upon the Manoeuvres at Manassas; by Major J. F. Harvey on Preventative Therapeutics; by Major Henry S. Dearing on the Examination of Recruits; by Thomas L. Jenkins on the Hygienic Aspect of the Blanket Roll; by Major E. W. Gates on the Nutritive Value of Foods; by Major Joseph S. Hart on the Inspection and Preservation of Meat; by Lieutenant J. W. Cummin on the Health of Troops in the Field; by Lieutenant H. H. Hartung on the X-Ray in Military Surgery; and by Lieutenant Arthur May on Veterinary Sanitation.

**MEDICAL ATTENDANCE TO RUSSIAN PRISONERS** in Japan is to be rendered by captive Russian medical officers, who are to be paid by the Japanese Government for their services in this capacity.

**THE MORTAR AND PESTLE.**—The Hospital Stewards of the United States Navy, on duty in the vicinity of Boston, have organized an Association of the Hospital Corps of the United States Navy, membership in which is open to all members of the Naval Hospital Corps. They inaugurated last month a monthly paper called the Mortar and Pestle as the official organ of the organization, a copy of which has reached this office and has been read with much interest.

**THE PHILIPPINE MONTHLY** is an interesting publication, the first number of which is dated May 1905, devoted to the interests of the Philippines

and those of the enlisted men serving there in particular. The first number is a very handsome issue and contains much of interest and value.

**RELATIVE RANK OF ASSISTANT SURGEONS IN THE ARMY.**—It has been decided that an Assistant Surgeon, held over for promotion to the grade of Captain on account of his failure to pass the requisite examination, is passed over by such medical officers as may have meanwhile attained the grade of Captain after successful examination. This decision was made in the case of Lieutenant Henry D. Thomason, who was passed over by Lieutenant Ralph S. Porter, under the circumstances given above.

**RIGHT OF CONTRACT SURGEONS TO WEAR CAMPAIGN BADGES.**—It has been decided that Contract Surgeons are entitled to wear campaign badges only when they have been earned by service as a commissioned officer or enlisted man of regulars or volunteers. When earned by service under contract they may not be worn.

**SANITATION ON THE ISTHMIAN CANAL.**—The Isthmian Canal Commission, at its meeting held in Washington, May 3, 1905, approved the estimates submitted by Col. W. C. Gorgas, chief sanitary officer and favorably recommended by Commissioner Magoon. These estimates provide for an allotment of \$656,444 for 1905-06, for the payment of salaries and wages in the health department, including professional employees and skilled and unskilled labor, a net increase of \$150,140 over the allotments for this year. This allotment does not include the cost of construction of necessary buildings and hospitals or the purchase of medical supplies and other necessary equipment, but is merely for the payment of the professional corps and the large number of laborers engaged in sanitation. As the expansion of force involves increase of duty and responsibility on the heads of the several offices and institutions included within the department of health, the commission authorized approximately a 15 per cent. increase in the salaries of the heads of the departments as follows:

Chief sanitary officer.....	\$10,000
Director of hospitals.....	8,000
Chief quarantine officer.....	7,000
Superintendent of Ancon Hospital.....	7,000
Superintendent of Colon Hospital.....	5,000
Health officer of the Panama health office.....	3,600
Health officer of the Colon health office.....	3,000
Resident physicians of emergency hospitals along the line of the canal.....	8,000
Chief sanitary inspector.....	3,000

The commission also authorized the immediate erection of an additional hospital building in Colon at the estimated cost of \$40,000.

## Current Literature.

### TRANSPORT OF THE SICK AND WOUNDED IN WAR \*

THE prize essay of Colonel Bernardo and Major Brezzi was selected from five memoirs submitted in competition for the Riberi prize of 1904, and forms a thorough discussion of the subject of transportation of the disabled in war, touching upon the various complications which may interfere with satisfactory transport; discussing the probable mortality in connection with transportation; referring to the arrangements of personnel and material desirable to secure the best results; and considering the conveniences which may assist in attaining the most satisfactory outcome. The work is comprehensive and interesting. It approaches the subject from a side rather different from that taken by Longmore in his well known English work and may well supplement and complete the information there available.

### BRYANT'S OPERATIVE SURGERY.†

NO work in operative surgery has been subjected to greater development than the well known treatise of General Bryant. First issued as a number in a cheap medical library, it has been from time to time reissued and revised until it now appears as a representative of the highest type of its class. In the fourth edition a large number of additions bring it up to the latest date in operative work, while many of the subjects formerly discussed have been extensively elaborated. The new surgery is fully represented, both in mechanics and technique. No up to date surgeon's library can be complete without this valuable work.

\**Lo Sgombero degli Ammalati e dei Feriti in Guerra.* Memoria di Dottori LUIGI BERNARDO e GIUSEPPE BREZZI. 8vo.; pp. 276, illustrated with numerous cuts and plates. Roma, Presso il Giornale Medico del Regio Esercito, 1905.

†*Operative Surgery.* By JOSEPH D. BRYANT, M.D. Fourth edition. 8vo; 2 volumes; pp. 1527, with 1793 illustrations, 100 in colors. New York, D. Appleton & Co., 1905.

## DEAVER ON APPENDICITIS.\*

THE enlarged third edition of Deaver's Appendicitis is just off the press and ready for distribution. The reader will find that, when compared with previous editions, there are marked changes in the author's views, which have been revised to correspond to his later experiences.

He does not now advise the removal of the appendix in every case, as in previous editions, realizing that every one has not had his ripe experience and dexterity.

In regard to the removal of the appendix in certain walled off cases of abscess with adhesions, he quotes Murphy as follows: "When the patient is apparently overwhelmed with intoxication from a circumscribed or diffused peritonitis, or inflammatory process, I content myself with making a simple incision in the abdomen and relieve the pus tension by the insertion of a large drainage tube without irrigation, without sponging and without manipulation of the tissues. On the other hand when the intoxication is not severe, even when the quantity of pus is large, circumscribed or not circumscribed the appendix is removed." The reviewer believes that Deaver has done well to make this exception as he has a large personal following among surgeons and there are many that lack his skill and dexterity who will be less inclined to remove the appendix in this class of cases than heretofore, which will result in more recoveries and a lessened mortality rate for these surgeons.

He has modified his opinions as to the time of operation. In the early stages he strenuously insists, as he always has done, on the prompt and immediate removal of the appendix; but "when the infection from the appendix surges through the peritoneal cavity without check or hindrance, without effusion or exudate, we have to deal with a form of peritonitis, intensely deadly, and where but little is gained by immediate operation. . . To remove

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\***Appendicitis.** Its History, Anatomy, Clinical Etiology, Pathology, Symptomatology, Diagnosis, Prognosis, Treatment, Technique of Operation, Complications and Sequels. By JOHN B. DEAVER, M.D. *Third edition*; roy. 8vo.; pp. 492, with 64 full page plates. Philadelphia, P. Blakiston's Son & Co., 1905.

the source of systemic infections we should have to remove the entire peritoneum, moreover there is nothing to drain. In such instances operation should not be undertaken until all acute symptoms have subsided. In these cases the treatment should be rest, ice to the abdomen, all foods withheld by the mouth and rectal enemata and alimentation be given."

The initial treatment of an attack has been greatly changed. "The battle of opiates vs. purgatives has been so thoroughly waged during the last decade or two that it seems useless to continue the discussion further \* \* \* \* for many years I was myself an ardent advocate of the treatment of appendicitis both before and after the operation by means of saline purgatives \* \* \* \* but I have come to regard the use of purgatives as not only useless in the majority of cases, but as positively harmful in some." The use of a laxative is advised only in the early stages of the attack where there is the history of the ingestion of indigestible food.

These quotations in the main represent the change of Deaver's views and the present status of the treatment of appendicitis. A number of chapters have been added, the principal ones being on Appendicitis in Children and Typhoid Appendicitis. Many others have been rewritten and enlarged.

The book is a standard treatise on the diseases of the appendix representing the accumulative experience of years and the results of several thousand operations. It has been greatly enlarged, practically rewritten and embellished by numerous plates many of which have been engraved especially for the present edition. It should be on the shelf of every doctor, whether physician or surgeon. The reviewer personally considers it one of the most valuable ones in his library. The appearance and general make up of the volume is very attractive, so much so that we congratulate the author on its excellence of contents and the publisher on its appearance.—A. R. ALLEN.

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